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Dennsylvania Angler



"ICE FISHING IN PENNSYLVANIA"



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TERRY RADER Fishery Manager
R. D. 3, Honesdale, Pa. Phone: 253-2033

SOUTHEAST REGION

NORTH CENTRAL REGION

JOHN I. BUCK Warden Supervisor
P. O. Box 5, Lock Haven, Pa.,
Phone: 748-7162
DAN HEYL Fishery Manager
R. D. 1, Spring Mills, Pa.,
Phone: Center Hall Empire 4-1065

SOUTH CENTRAL REGION

HAROLD CORBIN Warden Supervisor
521 13th St., Huntingdon, Pa.,
Phone: Mitchell 3-0355

CURTIS SIMES Fishery Manager
Echo Glen, Huntingdon, Pa.,
Phone: Mitchell 3-3651

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Ice Fishing in Pennsylvania

By RUSSELL S. ORR-Chief Division Conservation Education

ICE fishing, particularly in the northern tier counties of the Commonwealth, is becoming an increasingly popular sport. Thousands of anglers have learned that they can enjoy many additional fishing trips each year if they go ice fishing. When the temperature drops low enough to cover the fishing waters with four inches or more of ice, a new breed of outdoorsmen takes over the fishing scene. Despite the threat of chilled feet and a chillier seat, an enthusiastic fisherman just can't stay inside when he realizes that somewhere under all that ice lurks the big one that got away last summer.

Generally speaking, the best ice fishing conditions exist during January and February. Exceptions, of course, are to be found on those waters which are safely frozen over during the last part of December, and those which remain frozen through some or all of the month of March.

With spud, tip-ups, jigging rods, minnows, worms, grubs, or anything else that will induce the fish to bite, the ice fisherman takes to the lakes and ponds of Pennsylvania. Generally it's a cold business—but it's always fun.

All types of warm clothing are in evidence. Son anglers bulge out with thick thermal underwear. Other get their protection from layer upon layer of shirt jackets, coats and even rainwear. Those who preference even more elaborate gear include electrically heater boots and flying suits in their equipment.

The ice fisherman of today, like his ancestors, wi find ways of developing at least some of the comfort of home. Some anglers pile snow in the typical Eskim igloo fashion for their protection. Others stretch a piece of canvas over poles. Still others bring along prefabricated windbreakers ranging from the elaborat canvas or plastic-covered wood or metal-framed shelter to ordinary packing boxes or heavy cardboard carton The ice shanties, which for many years were the ac cepted and nearly universal method of protection from the elements, have become quite rare. The difficulty of dragging them to and from the fishing spots, the nee for a special permit and the regulations requiring removal of the shanties before break-up of the ice, a have contributed to the passing of this kind of facility Today's fisherman is more apt to favor the easily por thle shelters made of either wood or metal frames overed with plastic.

Ice fishing tackle can be as simple or as elaborate is the fisherman cares to make it. There are the hand-whittled fishing jigs, the commercially produced tipups, or the do-it-yourself rigs made of a stick of wood, a dime store rod and reel with a bottle cork for a float. Some anglers prefer to use their regular fishing tackle. Then, of course, the absolute minimum in fishing gears just a hand line and hook.

The complete angler thinks nothing of using the possessions of other members of his family when he issembles his ice fishing gear. Junior's sled, the wife's eitchen utensils and other items which might be used are put to work. The kitchen strainer is a must to keep ce and slush from closing the fishing hole.

Nothing quite equals Junior's sled as a means of nauling the fishing gear. The sled, in addition to pro-



CHAIN SAW makes ice fly. Cuts out ice hole in a jiffy through thick ice.

viding an easy means of transporting the paraphernalia, is an excellent place to park the seat of your pants. An old wooden box, a folding stool, or just a piece of board that fits across the bait bucket will do the trick, but don't forget it.

If the angler can move in on a spot where the fishing holes already are cut, he is lucky. Otherwise, some action with the steel spud bar is in order. Even an axe usually used to cut wood can be the means of chopping through the ice. The modern ice fisherman, of course, has found an even easier and quicker way to gain access to the fishing waters. A chain saw plows its way through the thickest ice with little effort on the part of the fisherman.

A round hole of five or six inches in diameter is suitable. Chopping of larger holes is discouraged as a safety factor because they may not entirely freeze or may be covered by a light layer of snow by the time another angler (or an occasional ice skater) chances along. Ice fishing is cold enough without inviting the opportunity to get a soaking.

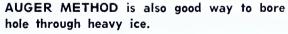
Unquestionably the best safety rule for all ice fishermen to follow is that of making sure the ice is sufficiently strong before going out on it. A minimum of four inches of good ice is necessary. Often the thickness varies from place to place, so that extreme care should be used in checking the thickness at regular intervals. Extreme caution should always be used when venturing onto ice which has been snow covered for a long period of time. Such ice is apt to become "spongy" and also underwater currents frequently wear the ice thin in spots.

Don't forget the "inner man" when you're out on the ice. He'll be hungrier than usual. Hot coffee, tea or cocoa in a thermos is always welcome. Chocolate bars and other foods quick in energy are appreciated as snacks. Plenty of butter on the sandwiches is an excellent means of providing the fat and oils needed to keep a person warm in freezing weather.

Many anglers take along a small stove. It can be used at mealtime for warming a can of beans, a stew or hot soups. Of course, if you can talk the gal who does the cooking at home into leaving her kitchen and joining the ice fishing party, most of the cooking details can thus be handled.

Stoves and other heating devices are sure to make an ice fishing trip more pleasant. On the other hand, the utmost care should be exercised with any heater regardless of the type of fuel if the shanty or windbreaker is made sufficiently airtight either to keep out light or hold in heat. Proper ventilation will avoid the danger of making a death-trap out of a tight shanty.

There is another important part of every ice fisherman's equipment. If overlooked or forgotten on the







TIP-UP is favored by many Pennsylvania ice anglers.

first trip, it is not likely that the ice creepers ever again will be left behind. In addition to providing practically the only means for making any headway in walking when a strong wind is blowing, the creepers are the best and cheapest possible insurance against bad falls.

Finding the right spot to fish on a lake or pond can be a big problem for beginners. It can keep the experts guessing sometimes, too. Usually if there already are a number of anglers congregated in one spot it will pay the newcomer to try his luck there too. Trial and error still has its place. Knowing fish and fish hangouts can save a lot of time and effort. Bluegills, crappies, northerns and bass frequent the edge of weed beds and drop offs. Normally, these fish are caught in no more than fifteen feet of water. Perch and walleye will follow the same patterns, but in reservoirs and other places where deeper waters exist, they often are found in twenty to forty feet of water.

In 1963, for the first time, it will be legal to take trout through the ice, of lakes of ten acres or more in size. The creel limit has been set at three trout per day (combined species) and the season ends January 31.

Your 1962 Pennsylvania fishing license is valid through February 28, 1963. You are allowed not more than five tip-ups, or any combination of five devices that include tip-ups and not more than two rods and lines, and one hand line while fishing through holes in the ice.

On pan fish, including sunfish (all species), yellow perch, crappies, rock bass, catfish and suckers the daily limit is 50 of each or 50 of the combined species, and there is no minimum size limit.

On game fish, minimum sizes and daily limits are: largemouth or smallmouth bass, minimum size—9 inches, daily limit—6; pickerel, minimum size—15 inches, daily limit—6; walleye, minimum size—15 inches, daily limit—2 only through the ice; muskellunge, minimum size—30 inches, daily limit—2; northern pike, minimum size—20 inches, daily limit—6.

Lakes, ponds and reservoirs, particularly in the northern tier counties of the Commonwealth, all are potentially good ice fishing waters. As a rule the smaller bodies of water freeze over sooner than the larger ones.

In general, bait, tackle, food and overnight accommodations may be found within a few miles of the ice fishing waters of the Commonwealth. When going into an area for the first time, it very likely would be wise to take along a good supply of bait, tackle and food. Overnight accommodations also should be secured in advance. Chambers of commerce, automobile clubs and tourist associations will provide listings of such facilities.

Here are some of the better known ice fishing waters in the state and the species found in them. Some are private so permission is needed.

NORTHEAST REGION

Fish Warden Supervisor, H. Clair Fleeger, P. O. Box 64, Honesdale, telephone 253-3724, reports that good ice fishing is to be found on hundreds of lakes, reservoirs and ponds in the region.

Lake Wallenpaupack, with 5,670 acres, is located near Hawley. Bass, walleye, pickerel, trout, pan fish and smelt provide sport there. Due to its large size, this lake normally is one of the last to freeze over. Other Pike County lakes are White Deer Lake, Rt. 402 near Rt. 6, bass, pickerel and pan fish; Fairview Lake, Rt. 390 at Tafton, bass, pickerel, walleye, smelt, trout and pan fish; Greeley Lake, Rt. 37 at Greeley, pickerel and pan fish; Pecks Pond, Rt. 402, bass, pickerel and pan fish; Promised Land Lake, Rt. 390 at Promised Land, bass, pickerel and pan fish; Lower Reservoir, Rt. 390 at Promised Land Lake, bass, pickerel, muskies, pan fish; Egypt Meadows Lake, Rt. 390 near Promised Land, pickerel and pan fish; Lake Minisink, LR 51031 near Porters Lake on Rt. 402, pickerel, bass and pan fish; Little Mud Pond, LR 51006 from Dingmans Ferry to Rt. 402, bass, pickerel and pan fish; Decker Marsh, Rt. 6 near Hawley, pickerel and pan fish; Delaware River from Narrowsburg to Bushkill, bass pickerel, walleye and pan fish. The best baits are shiners and jigs. Lodging is available within five miles of any spot.

Lackawanna County ice fishing areas include Chapman Lake, near Montdale on Rt. 247, Newton Lake or Rt. 247, Crystal Lake near Dundaff on Rt. 247, Lake Sheridan on Rt. 107 near Fleetville, Heart Lake at the intersection of Rts. 247 and 107, and Handsome Lake

ff Rt. 107 near Fleetville. Bass, pickerel and pan fish re present in most of these waters. Live bait is most idely used, with golden and mousee grubs highly prerred. Jigging with a perch eye is also popular. Nuterous live bait dealers are located throughout the area.
Most Susquehanna County ice fishing areas will prouce bass, pickerel and pan fish. Waters located in the
punty include Acre Lake on Rt. 106 near Lenox and
lingsley; Fiddle Lake on Rt. 270 near Herrick Center;
tearns Lake off Rt. 92 near Gelatt; Round Pond off

t. 106 near Lenox and West Clifford; Lowe Lake on t. 371 near Herrick Center; Quaker Lake off Rt. 29 ear Montrose; Laurel Lake off Rt. 29 near Montrose; orest Lake and Lake Montrose both off of Rt. 106 ear Montrose; Stump Pond and East Lake, off Rt. 92 near New Milford; Tingley Lake, LR 57028 near ew Milford; Upper, Middle and Lower Lakes, off R 57028.

In Columbia County, Arbutus Dam, off Rt. 42 near loomsburg, and Jonestown Dam, off of Rt. 339 near orks, are rated highly. Bass, pickerel and pan fish are ne most common species present. Live bait with tipps is the preferred method of fishing.

In Montour County, Lawrence Ice Dam, off Rt. 54 ear Danville, is good for bass and pan fish. Live bait ith tip-ups or jigging rods with perch eyes are ecommended.

Ice fishing lakes in Monroe County include Bradys ake, off Rt. 940 between Mt. Pocono and Blakeslee orners, and Tobyhanna Lake No. 2, located in Tobyanna State Park, three miles off Rt. 611. Bass, pickerel nd pan fish are the most common species present and innows are the best bait. Numerous bait and equipment dealers are located in the vicinity of both lakes. Imple lodging and restaurant facilities also may be bund nearby.

Ice fishing pressure normally has been rather light a Carbon County. Lake Harmony, located off of Rt. 03 has been one of the most popular spots. Bass, ickerel and pan fish predominate. Tippetts Swamp, off Rt. 45 near Nesquehoning, produces bass, pickerel. odging and live bait are difficult to obtain near this ike.

Lakes which provide ice fishing in Bradford County re Lake Ondawa near Big Pond on LR 08064; Frenchley Pond on LR 08067, off of Rt. 187; Spring ake, Rt. 187 near Durrell; Ackley Pond on Rt. 187; unfish Pond on Rt. 414, and Lake Wesauking on the Ackley Pond on Rt. 414, and Lake Wesauking on the Ackley Pond on Rt. 414, and Lake Wesauking on the Ackley Pond on Rt. 414, and Lake Wesauking on the Ackley Pond on Rt. 414, and Lake Wesauking on the Ackley Pond on Rt. 414, and Lake Wesauking on the Ackley Pond on Rt. 414, and Lake Wesauking on the Ackley Pond on Rt. 414, and Lake Wesauking on the Ackley Pond on Rt. 187; Spring ake, Rt. 187;

Lake Jean and Lake Rose, located in Ricketts Glen state Park, on Rt. 487 near Red Rock in Sullivan and Luzerne Counties, provide excellent fishing for most varm water species. Live minnows are the most pro-uctive bait.

In Sullivan County, Hunters Lake, located on Rt.

42 near Muncy Valley and Bear Swamp Pond, near Hillsgrove on Rt. 87, provide good fishing for bass and pan fish. There are no bait dealers in the area. Lodging, however, is available at numerous places.

The 658-acre Harveys Lake in Luzerne County is one of the most popular ice fishing spots in Northeastern Pennsylvania. With trout fishing being permitted during the month of January, 1963, increased fishing activity is anticipated. Live minnows are most productive, although jigging with artificial (metal) minnows is very popular. In addition to trout, most warm water species are present in the lake.

Other Luzerne County ice fishing waters are Silkworth Lake, located directly on Rt. 29, north of West Nanticoke, trout and warm-water species. Minnows and jigs produce the best results; Bryants Pond, Rt. 29 or Rt. 118 near Meeker or Loyalville, pickerel and pan fish; Sylvan Lake, eight miles northeast of Shickshinny, bass, pickerel, walleye and pan fish; Nuangola Lake, near Wilkes-Barre, off Rt. 309, bass, pickerel, walleye and pan fish; and North Lake, off Rt. 118 west of Dallas, trout, bass, pickerel and pan fish. Bait and equipment are available near most of these lakes. Minnows and jigs are most effective, however grubs are a popular bait for perch.

In Susquehanna County the major ice fishing waters are Lake Winola, located off Rt. 307, pickerel, rainbow and lake trout and pan fish; Lake Carey, off of Rt. 29 north of Tunkhannock, rainbow trout, pickerel, walleye and pan fish; Stevens Lake, one mile above Lake Carey on Rt. 29, pickerel, bluegills; Nigger and Chamberlain Ponds, Rt. 187 near Mehoopany, pickerel, bass and pan fish. Live bait can be obtained near most of these areas. Live bait or jigging spoons are best for trout, large shiners and tip-ups for pickerel, small shiners and small jigging lures for perch and small spoons with wheat or wax worms or water worms for bluegills.

Wayne County has many ponds and lakes which provide outstanding ice fishing. Included are: White Oak Pond, Rts. 296 or 170, perch and pickerel; Miller Pond, Rt. 247, perch, largemouth bass and pickerel; Long Pond, Rt. 670, perch, bass and pickerel; Lower

IT'S A COLD BUSINESS—But Fun!





Woods Pond, Rt. 371, perch, bass, walleye and pickerel; Duck Harbor Pond, Rt. 191, perch, bass, walleye and pickerel; Union Lake, Rt. 191, perch and pickerel; Keene Pond, Rt. 6, perch, bass, pickerel and pan fish; Cadjaw Pond, Lg. Rt. 63044, perch, bass and pickerel; Reinings Pond, LR 63044, perch, bass and pickerel; Beach Lake, Rt. 106, pickerel, bass and pan fish; Wrighters Lake, LR 63067, walleye, bass, pickerel and perch; Spruce Lake, Rt. 370, perch, pickerel and pan fish; Fork Mountain Lake, LR 63041, perch and pickerel; Lake Lorraine, Rt. 370, trout, perch and pickerel; Long (Furies) Lake, Rt. 247, trout, perch and pickerel; Gouldsboro Lake, Rt. 611, pickerel, muskies, perch, walleye, bass; Belmont Lake, Rt. 670, walleve, pickerel, bass and perch (special regulations for size and creel limits posted at lake).

NORTHWEST REGION

Fish Warden Supervisor S. Carlyle Sheldon, of 1212 E. Main Street, Conneautville, telephone 3033, lists Presque Isle Bay in Eric County as one of the most popular and heaviest fished areas during the Commonwealth's ice fishing season. Perch and smelt, with ar occasional northern pike or largemouth bass, are the main attractions during the early part of the season Towards spring, bluegills and black crappies are predominate in the catches. Emerald shiners and moused grubs are the preferred baits for all species. Bait stands which are open all winter, are located at the public dock and the entrance to the peninsula.

Other Erie County lakes which furnish good ice fishing include Eaton Reservoir, near Northeast; Lake Pleasant, near Union City; Lake LeBoeuf, near Waterford, and Edinboro Lake, near Edinboro. Bass and par fish are the main species to be caught in these waters

Next to Erie County in ice fishing popularity is Crawford County and the vast Pymatuning Lake Crappies and bluegills are the most common, although bass and walleye are sometimes evident in the ice fisher man's catch.

Conneaut Lake, near Meadville; Sugar Lake, 12 miles east of Meadville; Canadohta Lake, north o Titusville; Crystal Lake, near Hartstown, and Clea Lake, near Spartansburg, are all popular Crawford County ice fishing spots for crappies, perch, bluegill and an occasional northern pike at Conneaut and Can adohta Lakes. Bait is usually extremely difficult to pur chase during the winter months in the vicinity of these lakes.

Other ice fishing areas in the Northwest region in clude Chapman Dam in Warren County, near Claren don on Rt. 6; Sandy Lake in Mercer County, nea Stoneboro on Rt. 78; Raccoon Park Lake in Beave County, at Raccoon State Park, and Glade Run Lake off Rt. 8 in Butler County.

When prolonged low temperatures have caused the ice to cover eddies in the Allegheny River in Warren Forest and Venango Counties, some ice fishing is done. This ice, however, is extremely dangerous and caution should be used when fishing there.

NORTHCENTRAL REGION

Fish Warden Supervisor John Buck, P. O. Box 5, Lock Haven, telephone 748-7162, predicts an ice fishing season for his region beginning in mid-December and continuing through February.

In Cameron County, Stevenson Dam (First Fork Dam), located in the State Park, is rated highly for pickerel fishing. The park is located north of Sinnemahoning on Rt. 872.

Black Moshannon Lake, in Centre County, offers pickerel and yellow perch fishing. The lake is located in Black Moshannon State Park on Rt. 504, north of Unionville.

In Lycoming County, Beaver Lake, which is leased by the Pennsylvania Fish Commission, also provides pickerel and yellow perch fishing. The lake is located east of Beech Glen on Rt. 42. Little Pine Dam, east of Waterville, is good for pickerel fishing.

Middle Creek Dam (Mussers Dam), in Snyder County, is popular for largemouth bass, crappies and pickerel. The Fish Commission-owned lake is located

on Rt. 35, southwest of Selinsgrove.

Hills Creek Dam in Tioga County can be reached by turning east off Rt. 84 above Crooked Creek. Largemouth bass is the predominate species.

Good live bait is needed to fish these areas. However, bait dealers are extremely rare in these counties, according to Buck.

SOUTHWEST REGION

Fish Warden Supervisor Minter C. Jones, R. D. 2, Somerset, telephone 6913, cautions that ice fishing in the region exists only when prolonged periods of freezing temperatures produce ice of sufficient thickness. In some years there is no ice fishing in the area.

The Youghiogheny River Dam in Somerset and Fayette Counties, which is crossed by U. S. Rt. 40, near Addison, is popular. Largemouth bass, pike and pan fish are to be found there. Fishing equipment and lodging may be secured at Confluence, Addison and Uniontown.

Lake Somerset, owned by the Fish Commission, and located near Somerset, has produced excellent pan fishing during recent years. Bass, walleye, northern pike and muskellunge, as well as pan fish, are present in Lake Somerset.

Virgin Run Lake in Fayette County, located between Perryopolis and Connellsville, off Rt. 711, has trout, bass and pan fish. Fishing equipment, overnight accommodations and other services may be obtained at nearby towns.

In Washington County, Dutch Fork Lake, located off Rt. 40 near Claysburg, offers angling for most warm water species. Canonsburg Lake, also in Washington County, may be reached from Rt. 19. Most warm water species are present in the lake.

The Allegheny River in Allegheny, Westmoreland and Armstrong Counties also provides limited ice fishing during extremely cold periods. Lodging and supplies may be found in numerous towns along the river.

Generally speaking, minnows and nightcrawlers are the preferred live baits.

SOUTHCENTRAL REGION

Fish Warden Supervisor Harold Corbin, 521 Thirteenth Street, Huntingdon, telephone MItchell 3-0355, lists Shawnee Lake in Bedford County, off Rt. 30 at Schellsburg, as a good spot for perch, pickerel, bluegills and largemouth bass. Minnows, grubs and jig spoons are the preferred baits.

Fannettsburg Lake, off Rt. 75 in Franklin County, provides largemouth bass, perch and bluegill fishing. Largemouth bass and pickerel are the main attractions at Letterkenny Reservoir off Rt. 433 at Roxbury. Minnows are the best bait at both of these Franklin County fishing spots.

Sinoquipe Lake, located off Rt. 522 at Fort Littleton in Fulton County, is a good bet for pickerel and largemouth bass. Minnows are the preferred bait.

Raystown Dam, off Rt. 22 at Huntingdon in Huntingdon County, provides good largemouth bass, crappie, perch and bluegill fishing. Minnows and grubs are the best baits. Pickerel is the species which provides most of the ice fishing sport at Whipple Dam, off Rt. 545 near McAlveys Fort, also in Huntingdon County.

Bait is extremely difficult to purchase throughout the region, and anglers are advised to secure both bait and equipment before journeying to any of these spots.

SOUTHEAST REGION

Fish Warden Supervisor John S. Ogden, 1130 Ruxton Road, York, telephone 2-3474, advises anglers to check carefully before attempting to ice fish in the region. Under normal conditions, low temperatures do not continue long enough to provide sufficient ice for safe fishing. During recent years, Lake Ontelaunee, located near Leesport on Rt. 122 in Berks County, and East Bangor Dam, located at East Bangor on Rt. 172 in Northampton County, have been the most dependable areas for ice fishing. Ontelaunee provides outstanding crappie fishing, as well as good catches of bass and pan fish. East Bangor Dam produces good catches of bass, pickerel and pan fish. Minnows and worms are the best baits.

NOT VERY BIG but they pull hard.





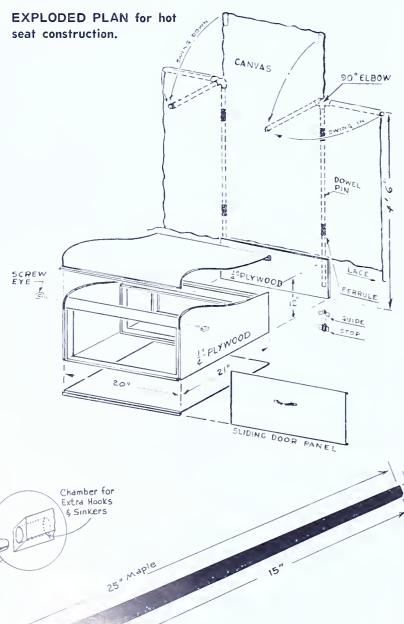
THIS HOT SEAT for ice fishing is a mighty handy item.



EASY ASSEMBLY, canvas cover is unfolded, placed over dowels, shelter is complete in seconds flat.



SOUTHERN COMFORT you can't beat t an ice angler.



Hot Seat

Ice fishing box contains tip-ups, lines, baits, hooks, lunch, coffee, several containers of canned heat, portable radio, a sturdy canvas canopy that assembles into a wind-breaking shelter. Keeps an ice angler warm as toast.

Plans show how the hot seat and wind breaker is assembled. Materials include canvas, one-quarter inch plywood, 1 x 2-inch framing, galvanized sheet metal, wood dowels and copper tubing ferrules. Cost runs about \$5.

Jig Rod

This unique rod is simply a hard wood stick, measuring about 24 inches in length, with an enlarged block midway above the handle for storing excess line. The handle is drilled with a half-inch hole, to a depth of three or four inches, for storing extra hooks, split shot, ice flies and spoon lures. The storage compartment is fitted with a cork stopper. The opposite end has a single eye-screw, of moderate size, which serves as a line guide. These fanciful fixtures are all functional in design. Ten minutes with a power jig saw is sufficient to produce a custom built model.

How is this winter rod used? For the benefit of newcomers to this winter sport, the jig rod assists in the manipulation of a line through a jagged hole punched through the frozen plate-glass window. A sufficient length of line (usually casting rod line) to reach down to the pond bottom is unwrapped from the block. The stick is then "jigged" in an up and downward rhythm, which in turn keeps the bait, trout wet fly or spoon in motion, attacts passing pansters. When bluegills, perch and smelt arrive on location, a jig rod aids the angler in heaving fish top side.

JIG ROD, dimensions-design.

Ice Fishing Tackle Tips

New Ice Fishing Baits

By DON SHINER

In the past, finding suitable baits was a problem for many an ice fisherman. Unless unusual measures were taken during the early fall months to collect and winterize a trapful of minnows, or a box of worms or crickets stored in the basement, the winter season found the ice-men lacking necessary baits for catching perch and pickerel. A time-consuming search then got underway to locate worm-filled galls on the stems of goldenrod, mill worms beneath sacks of wheat and flour, and foreign larvae in bee hives. The choice was these tiny baits, small spoons or trout flies for the winter jig-fishing activities.

A new breakthrough in the field of plastics now brings new baits to fishermen in the form of soft, scented lures. These new artificial baits look, feel and actually smell and taste like real fish snacks! With a jig rod, ice chopper and a pocketful of these new unusual baits, the angler is equipped for action on the ice-covered pond or lake.

These ice baits are molded into a variety of shapes, and colors. Minnows, corn borer worms, tadpoles, tiny frogs, worms and even raspberries are among the assortment. Not only do these extremely soft baits feel and look like natural baits, they are heavily scented with licorice that penetrates far into the water to tantalize nearby schools of fish. The scent is imbedded into the resilient plastic, enabling the flavorable odor to continually rise to the surface and become self-renewing. The new baits are now widely available in sports shops.

The plastic is unique in that the baits remain pliable even under zero weather conditions. The soft, flexible material, while retaining its molded form, can be stretched, pulled or compressed, yet will return instantly to its original form. The rainbow assortments of pigments are impregnated within the material, giving the lures a translucent effect. Bright pink, gold, olive, yellow, green, blue, black and clear are a few of the numerous shades. When the baits are exposed in a tackle box, the licorice scent floods the interior, giving the impression that candy is stored in the various compartments.

I was first introduced to these baits through a news flier forwarded by a prominent manufacturer. After glancing over the blurb, I immediately sensed the value of these plastic lures as potential ice fishing baits. Later I visited a local tackle shop, picked an assortment of the scented baits, and drove to a nearby lake. Snow had covered the foot-thick ice on the pond. I set about chopping an ice hole while my oldest son shoveled snow to form an open area for skating.

After the water finally bubbled through the ice hole, I rigged a jig stick and baited the hook with an olive colored corn borer. The first 15 minutes was devoid of action. Then, quick as a flash, I felt a solid pull on the line. Through the ice came the first of many fat yellow perch, more colorful than a winter sunset! Action came fast as the school swarmed beneath the ice hole. The soft plastic lures proved darn good ice baits.

There is little need to search far and wide for suitable winter baits. A visit to a sports shop will find them.



NEW PLASTIC BAITS especially designed for the ice fisherman. The baits are soft, look, feel, smell and faste like real fish snacks! They are heavily scented with licorice. Included in this assortment are: raspberry bobs, corn borers, minnows, mice and tadpoles.



ICE FISHING is rapidly gaining favor with Pennsylvania anglers, a sport that is expanding fishing over a longer stretch of the year.



PROVEN RESULTS via this nice catch of plump, colorful yellow perch.

Cooperative Nursery a Suc







FIRST SERIES OF RACEWAYS, five in number, with a combined length of 250 feet. At the bridge in the foreground the main spring flows into the raceways. It has a flow rate of 150 gallons per minute in normal weather. Last year during the dry season flow rate exceeded 100 gallons per minute. Also these raceways contain three lesser springs. Raceways have flagstone spillways, drains under each header and electric lights. Overflow box in upper raceway, which can be regulated, controls flow of water over entire project. Main drain pipes are also located in upper raceway. Entire operation may be drained for cleaning. All banks are seeded and planted with shrubs. Note basket willow along banks. All walks are graveled with limestone. Entire project has all flagstone walks. This area contains brook trout. About 40 per cent are legal at this time. Over 3,000 people visited this nursery this past spring, summer and fall. Many people believed it to be a state project until notified otherwise. Many donations have been received to support the project. Membership at the present time is 850 with members from all sections of the state. Area is leased from Clinton Delzell from New Brighton, Pa.

otter County Angler's Club



In the initial project of the Potter County Angler's club, the group reared 22,900 brook and brown trout—4,500 brook and 8,400 brown. Last spring the club tocked 12,500 brook and 6,400 brown trout with 4,000 rown and brook trout held over for future stocking. In early summer the club stocked Lyman Lake with 5,500 combined brook and brown trout with 2,500 held over for stocking this coming spring. The club also has 00 brook trout 4 years old which average 20 inches in length and three pounds in weight.

The club is currently rearing 25,000 brook trout, 0,000 brown trout, 2,000 rainbow trout and 1,000 amloop trout. The club was also expecting 5,000 brook rout from the Federal Wildlife Service, a total of 2,000 to be reared at the nursery project.

During the past summer an additional two raceways

and two holding ponds have been completed. The nursery now has nine raceways with a combination length of 650 feet. The four holding ponds have a combined length of 500 feet and an average width of 40 feet. Merrill Lillie, Superintendent of the Pennsylvania Fish Commission's Union City and Corry hatcheries, inspected the nursery and estimated the club could rear 50,000 trout.

The club with a membership of 800 is steadily growing. During the past year about 1,200 man hours of work have been contributed to the nursery project. Jim Kennedy, who passed away in January, 1962, and who faithfully cared for the trout has been succeeded by 16-year-old John Allen, who during the school year, gets up at 5:30 a.m. and cares for the trout before going to classes.

TWO NEW RACEWAYS that were built this past spring. They have a combined length of 140 feet. Brown trout are being reared in these raceways. In the rear portion of the picture, in line with the right hand rail of the bridge, may be seen the new holding pond. This holding pond is 80 feet long with a width of 30 feet and depth of 2 feet. Directly to the rear of the bridge is the original holding pond. This pond was built with the first series of raceways. It is 80 feet long, 40 feet wide and has a depth of $3\frac{1}{2}$ feet. Note water being aerated in a series of falls at outlet of holding pond. Aeration is also accomplished by fountain in center of this pond. Water is piped from a reservoir that was built 100 feet above nursery. The same reservoir supplies water to the building located at the nursery. Banks to left of picture are all seeded and planted with basket willow, donated by the Pennsylvania Game Commission. All walks are graveled.



ANUARY—1963

Some Favorite Des F



Raystown Dam, Huntingdon County.

Conneaut Lake, Crawford County.





Harvey's Luzerne



Lake Lorain, Wayne County.





Spots in Pennsylvania



at Night,

e County.



Lake Wallenpaupack, Pike County.



Action at Lake Jean, Luzerne County.

Peck's Pond, Pike County.



A NOVEL METHOD OF REMOVING FISHHOOKS

Reprinted from "What's New" by permission of Abbott Laboratories

As fishermen and physicians know, removing fish-hooks that have become embedded in fingers is a tricky and painful job because of the barb. A common method is to force the point forward until it emerges from the skin, then to squeeze down the barb or break it off with pliers. The curved part of the hook is then drawn back through the curved path of entry. This causes less pain and trauma than cutting or breaking the eye of the hook and drawing the straight shank on through the curved path.

Theo Cooke, in the Medical Journal of Australia (June 3, 1961, p. 815), says that by the time he has anesthetized the area, remembered where he had left his pliers and struggled to force the point of the hook out again (which can be difficult, especially when it is small and deeply embedded) the procedure becomes lengthy.

Cooke describes a much quicker method used by fishermen of his area near Port Vincent on St. Vincent's Gulf, South Australia. These men can have a hook flicked out, dip the finger in the sea, and be fishing again within a minute. Cooke writes, "Those of my medical colleagues whom I have asked have not heard of this method, and most of them have expressed disbelief in its practice."

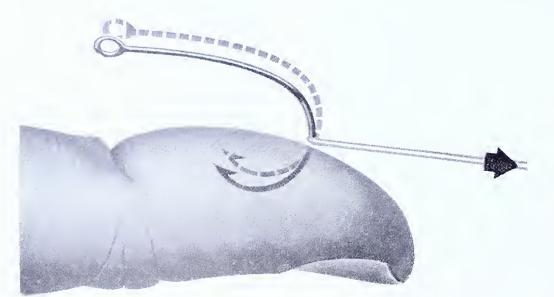
How It's Done Quickly and Painlessly

The person who is to remove the hook makes a loop of ordinary string and winds the ends securely around his right index finger. The loop, about 18 inches long, is slipped over the shank of the hook. The finger which the hook has entered is placed on a firm surface with

the eye of the hook pointing to the left of the manipulator who then takes the eye and shank between the thumb and index finger of his left hand, which rests on the patient's hand. Holding the shank rigidly, he depresses it, painlessly disengaging the barb unless the hook is moved sideways. He slowly straightens the loop of string horizontally in the plane of the long axis of the shank. This is a test maneuver to make sure the loop will not become tangled on coat buttons and to bring the center of the loop gently against the curve of the hook.

The tip of the operator's left third finger then holds the center of the loop against the finger at the point where the hook enters. The operator brings his right hand back to the hook and suddenly jerks it away again in the same direction as in the test maneuver, with full follow-through. The hook is spun back out of the finger without enlarging the track or the hole of entry. For hooks larger than a size 1 whiting hook, a double loop 24 to 30 inches long is used, and Cooke states that full-sized snapper hooks present a quite different mechanical problem.

Most of the fishermen in his area remove hooks themselves by this method, so Cooke has had a chance to use it on only three patients. It was unsuccessful in one case in which the point was almost emerging from the skin and in which he thinks he had failed to disengage the barb from the corium. Hooks were removed from the other two patients in a few seconds painlessly and very easily. One patient was a woman whose husband was incensed because he could have removed the hook in this way, but had driven his wife 27 miles "to have it removed properly."



FOLLOWING A FEW preparations—such as reassuring the patient and than placing his hand on a firm surface—the hook's shank is depressed to disengage the barb. The loop of string is in position. A sharp jerk of the string in the direction of the arrow removes the hook quickly and painlessly. The dotted line indicates the disengagement of the barb as the shank is depressed.

Underwater Illusions

By EUGENE R. SLATICK

YOU'VE probably noticed that a stick looks bent when it is part way in water. Maybe you've also noticed hat clear water looks shallower than it really is. And f you do any bow fishing you know that you usually have to shoot the arrow slightly below the target in order to score a hit. The chances are, though, that when you do notice such things you aren't in the mood to give them much thought. But the reason why things often look different under water is because light behaves lifferently when it enters water. If we want to be formal we can say it's all because of refraction.

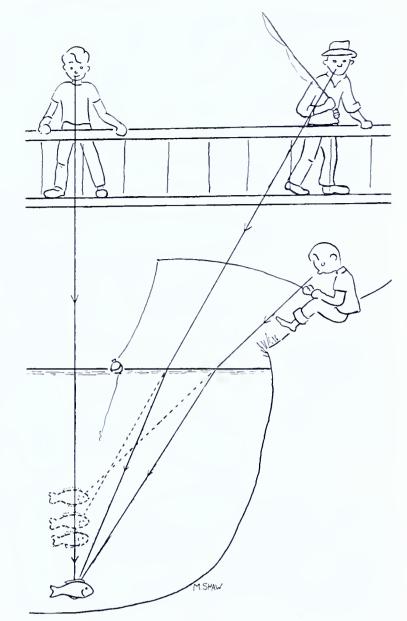
Whenever you look at something your line of sight ollows a straight path right to the object. But when ou look into water from anywhere except directly bove, your line of sight is bent downward after it inters the water. This has the effect of making things ppear closer to the surface. If you look down into vater, as from a bridge your sight isn't deflected but nything in the water still looks nearer the surface.

Suppose you were sitting on the shore of a pool of lear water and you saw a fish that appears to you to e about 3 feet below the surface. Another fellow standing several feet higher would say that the fish was omewhat deeper. And someone standing on a bridge irectly over the fish would estimate the fish to be still eeper. None of those people would be right, but the erson on the bridge would be closest to the true depth.

If you are a pretty good judge of distances you can stimate the real depth of clear water, or of something a it, by multiplying the apparent depth by 1.3. For xample, water that looks to be about 15 feet deep will eally be almost 20 feet deep. You must remember, hower, that this rule of thumb only works when you are ooking straight down into the water (like from a boat) and not when you look into it at an angle (like from he shore).

Fish don't know it, but their line of sight bends lownward when they look *out* of water (except when hey look directly overhead). Quite frequently this is to heir advantage because from certain positions they an see over low banks—and perhaps spot a fisherman pproaching.

Of course, you can't see into water if it is muddy or hoppy. Even with clear water a lot depends upon the osition of the sun. And there are always surface relections to cope with. The clearer the water the deeper ou can see; but even in the clearest water more than



BECAUSE OF REFRACTION, each of these persons sees different images of the same fish. The person looking straight down into the water sees an image that is closest to the actual fish.

half the sunlight is absorbed at the surface and at 30 feet only about 25 per cent of the light remains.

So now you know that many of the things you see in water are only illusions or images. But even though her secret's out, old Mother Nature is going to keep right on playing tricks on your eyes whenever you look into water—and she'll probably fool you many times.



ANUARY—1963

ELIMINATE

"REEL TROUBLE"

By GORDON L. STROBECK

Anglers should keep their reels in tiptop shape by checking them before and after use. Fishermen may buy the most expensive reels on the market but cheap reels will do just as well if anglers are careless about their tackle and equipment.

Each type of reel has its good and bad points. If you are a trout fisherman, you may prefer the old-style open reel with "wind-up" action because this type of reel needs little attention. Or you may like an automatic. You may not be able to take in line fast enough with the "wind-up" reel if a lunker takes your fly, but it is easy to keep a taut line with an automatic reel. But be careful not to get any dirt or sand in an automatic or you might just as well quit fishing and go home.

Perhaps you are a bass fisherman. If so, you probably use a good bait casting reel, but sometimes feel that you have more than your share of backlashes. Correct usage of your reel will climinate many "bird's nests," but there is no guarantee against them. Even the best anti-backlash reels are not immune. However, the anti-backlash reels do make better casting possible.



CLEAN reel parts separately and place them on a large numbered paper. Put reel together in reverse order, according to the numbers on the paper beside the parts.



REWIND the coiled spring after cleaning. Hook outside of the coil to the inside of the cover.

If you feel that the click on your reel wears out too fast, avoid casting with the click on.

Maybe you like a spinning reel. You can cast farther with less effort and there are no backlashes to untangle. Moreover, spinning tackle can be used for either trout or bass fishing. But it is sometimes tricky to use and the handle is on the left side, while most people are right-handed. The tackle makers have turned this fact into publicity. "Now," they say, "you can fish without changing hands as you cast and reel in." Everyone has his own opinion, but I consider the things a bit awkward and prefer the ordinary bait casting reei.

If you do any salt-water fishing, beware of corrosion. It's an ever-present danger and makes it imperative that you stop corrosion before it starts. Otherwise, you may go out some day and find a non-usable reel in your tackle box. So after each fishing trip, dip your reel in a bucket of fresh water for about three minutes. This will keep your reel from corroding until you find time for a complete reel-cleaning job.

Most reel troubles can be traced directly to their owner's misuse and abuse. Make sure that your reel won't fall apart the next time you go after that lunker.

Make your reel a help as it was intended to be. If you are getting an abnormal amount of backlashes, the chances are you aren't using your reel as the manufacturer intended it should be used. So get out the instructions that came with the reel and read them carefully. Then follow them! Adjust your antibacklash for the weight of the particular plug you happen to be using before casting. This will eliminate the necessity for thumbing and cut down your backlashes. You'il feel more like fishing too because you won't lose your temper so often.

To keep your level-wind working, carry a small can of light machine oil with you and apply a few drops now and then Apply a little graphite grease to the level-wind before you start to fish to make it run smoother.

Also, before you start to fish, make sure that all of the screws on your reel are tight. However, don't tighten then too much. Over-tightened screws will sometimes affect th action of a reel; the spool will be stiff and it will affect you casting. A little clear nail polish applied to the head of each screw will prevent it from loosening.

All worn parts should be replaced before going on a fishing trip. However, if something should go wrong with your recewhile you are fishing, you can soon repair it with parts from "reel kit." These kits are available at most sporting good stores at reasonable prices and contain reel pawls, screws, an other parts to fit most reels.

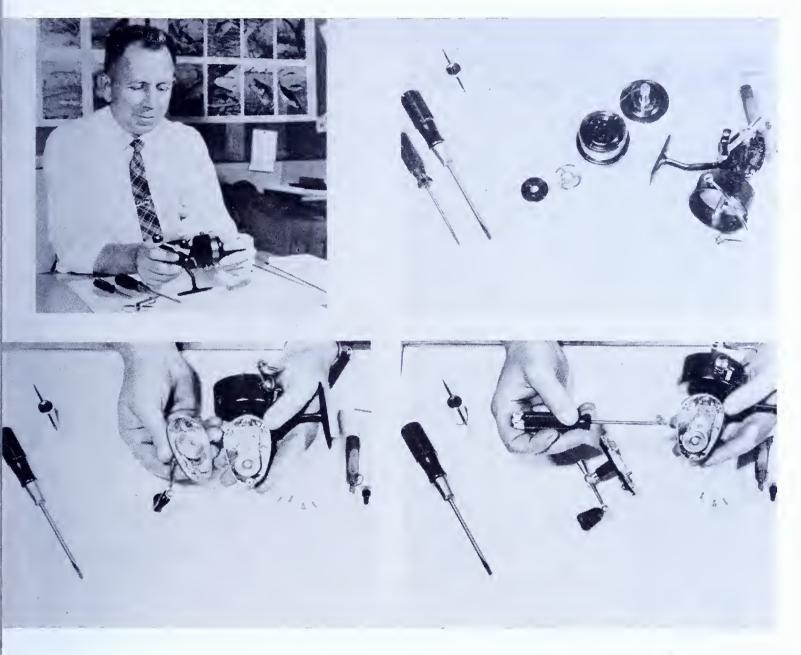
If something goes wrong with your reel and you can fix it immediately, you don't have to quit fishing if you carr a spare reel, complete with line, in your tackle box.

Some bait casters buy only fifty yards of line instead of the usual hundred. Reel manufacturers now supply a cork of plastic reel arbor to take the place of line backing, so your line will fill the spool and make casting easier.

After the fishing season is over, your reel or reels should I stripped of line, taken apart and cleaned thoroughly, repaire (if needed) and stored, after reassembling, in a dry place tithe next fishing season rolls around.

When cleaning your reel, take the reel completely apart ar wash the parts in kerosene, drying them off with a silk clot'. But *do not* clean nylon parts in kerosene. Kerosene will softe them. Just wipe nylon parts off with an oil-soaked rag.

Replace all worn parts, paying particular attention to the level-wind and the reel pawl. So that you don't have parts be over when you put the reel together, it is advisable to cleat the parts separately as they are removed from the reel at place them on a large, numbered piece of paper, as illustrate



he parts will then be in order and reassembling the reel will e easy. Merely put the reel together in reverse order, acording to the numbers on the paper beside the parts.

Before reassembly, apply reel grease and light machine oil the gears and other parts. *Do not* over-grease or over-oil. oo much oil and grease on the gears will tighten the action the reel.

Automatic fly reels can be tricky to clean because of the piled steel springs which power them. When you clean your utomatic, don't let the steel spring fly out of its cover or you'll pend half a day trying to rewind it. Just remove the main crew and clean the cover and spring together by dropping oth in a coffee can of kerosene. Use an old, silk rag to drynem off.

To remove the spring from the cover, hold both in one hand and slip a screwdriver along the outside edge of the spring. This will loosen it so that it can be carefully uncoiled and leaned separately.

After thoroughly cleaning and oiling your automatic reel, ewind the coiled steel spring clockwise, inside the cover, as hown. Grease and oil the reel lightly and reassemble it, ataching the main screw.

"Wind-up" fly reels require little attention beyond a few rops of light oil now and then and spinning reels are easy to lean and oil. A good reel will last a lifetime if you take roper care of it.

CLEANING SPINNING REELS

Spinning reels are easy to clean for trouble-free fishing, says Dick Wolff, the Garcia Fisherman. Dick contends that a four-step check, as demonstrated here, often during the season and at the end of it will save dollars and make fishing more fun.

- (1) Start with a clean place to work. Add a handful of paper towels, a special reel tool, screw drivers, oil, reel lube, and a small bristle brush.
- (2) Remove the spool and disassemble by unscrewing the drag nut. Lay out the parts in the order that you remove them: spindle, spoon shell, drag washer or brake spring, and wing nut. This makes reassembling much easier. Clean the parts with kerosene or any good solvent. Relubricate and reassemble before starting on the next part.
- (3) Open the side plate and carefully check the gears for dirt and grime or corrosion. Clean if necessary.
- (4) Frequently, the lube covering the gears needs only to be redistributed. Add fresh lube to cover the gears if necessary. Reassemble and oil the extremities of the bail, then wipe excess oil and grease over the body of the reel before storing it.

Anglers should return their reels to the factory for major servicing and repairs. Worn gears and malfunctions which the individual angler might miss are quickly fixed by trained service repairmen.

Boating





Gear Ratios Control Power Output of Outboard Motors

In paging through an outboard motor catalog or owner's manual, you may have come across the subject of gear ratios. But, unless you're quite mechanically inclined, a ratio expressed as 12:21 probably meant little or nothing to you. Actually these figures refer to the number of teeth on the gears that make up the drive mechanism of your outboard motor. If you're interested in this nuts and bolts aspect of outboard boating, Bill Smale, chief engineer at Evinrude Motors, offers the following explanation.

The drive shaft, connected directly to the power head, turns at the same number of revolutions as does the engine. The drive shaft, through the use of gears, is also connected to the propeller shaft. If the drive and propeller gears were in direct ratio such as 12:12, the propeller would turn the same number of rpm as the engine. After the motor had a chance to wind out, this setup would result in maximum efficiency as far as speed is concerned. However, torque or pulling power would be substantially reduced since the engine would not be able to develop its full rpm potential when start-

ing out or pulling a heavy load. In broad terms, the situation would be comparable to continuously running an automobile in high gear. At least this holds true for smaller or middle sized outboards.

With larger outboard motors, the situation is some what different. Smale explains that the resistance en countered by a boat as it begins to plane can be over come through the use of either gear ratios or increase horsepower. A 75-horsepower motor, for example, ha sufficient torque to pull an almost direct gear ratio o 23:20 and still maintain speed and power.

Gear ratios will vary with different models and brand of outboard motors and comparing the ratios them selves will prove nothing. Engineers establish ratios b determining the intended use of the motor, the propellers available and other factors so as to allow th motor to deliver the best possible all-purpose performance. Unless the motor is to be used for a special purpose, such as competitive racing or commercial wor where an extremely heavy load is pulled, the outboar owner should not be concerned with gear ratios. For

werage, all-purpose use, the gears used in a standard notor will be most suitable.

To better understand what gear ratios are all about, seep the following points in mind. The greater the pread between the two numbers of the gear ratio, the greater is the reduction in propeller rpm to engine rpm. This reduction allows the propeller to develop greater orque. The first figure indicates the number of teeth on the drive or pinion gear and the second figure, the number of teeth on the propeller shaft gear, which is, n effect, a reduction gear.

Adequate Insurance Coverage Is Suggested for Boat Owners

Like an automobile owner, the boatman should have nsurance to protect himself on two counts—property lamage or injury he may cause to others and damage or injury he may suffer himself. Of the two, the first, which is referred to as bodily injury and property damage liability insurance, is most important says the Evinude Boating Foundation.

Many boatmen are automatically covered for liability, it least to some extent, under their comprehensive home owner's policies. But since the coverage varies with lifferent insurance companies, types of policies and parts of the country, it's wise to know for sure just now much coverage you have rather than assuming you have enough. Your insurance agent can quickly explain the coverage and suggest an additional policy if it is needed.

Insurance on your own equipment is also important. Contingencies most often covered are fire, theft, colision, sinking, stranding and loss of motor overboard. These and other perils are covered in all risk and comprehensive policies, the type most often purchased by poat owners. The annual premium for such coverage is usually about four per cent the declared value of the equipment. Other types of lesser coverage are also available. Some insurance policies carry a deductible clause tating that the owner must pay for damages which do not exceed a certain amount, usually from \$25 to \$100. As a result, premium costs are reduced.

Companies dealing in boat insurance realize that the equipment is not always used the year round and it is on this premise that premiums are established. If insureds would limit their coverage to only the most active part of the season, premiums would have to be prorated and raised accordingly. This being the case, no significant savings can be made by canceling your policy at the end of the season. For the little extra cost involved, it's far better to keep your rig fully insured at all times to protect it against such perils as fire, theft, and windstorm that can occur at any time.

Significant premium savings can be made, however, by insuring your equipment for only its current book value. Depreciation must be taken into consideration for, obviously, a rig worth \$2,000 five years ago will be worth considerably less today. In the event of loss, insurance companies will pay only the actual cost of re-

First Aid Procedure for Dunked Outboard

Outboard motors are made to be clamped on the transoms of boats with only the portion that lies below the cavitation plate in the water. However, for one reason or another, each year many outboards get a complete dunking. Like your camera, radio, or any other piece of equipment, if they are submerged they can be damaged.

Engineers at Evinrude Motors advise that engines submerged in salt water be taken immediately upon recovery to a dealer. If a motor is submerged in fresh water for a period of 48 hours or longer, it should also be taken to a dealer as soon as recovered.

However, if a motor is recovered from the water immediately, attempt to start it. If it starts, run it for about 30 minutes or until it is thoroughly warmed. Stop the engine and immediately try to start it again. If it starts the second time, there is no apparent damage.

If a motor remains under water for a period of from an hour up to 48 hours, several steps should be taken upon recovery. First, remove the motor cover, then remove the spark plugs, the carburetor sediment bowl and the carburetor drain screw. Pull the manual starter over six or eight times. Squirt some motor oil into the spark plug holes, then reassemble the motor and attempt to start it.

If it starts, warm it completely, stop it, and attempt to start it again.

If it starts, repeat the procedure for a motor submerged only briefly. Run it until thoroughly warmed up, stop it and attempt to start it again. If it starts a second time, it suffered no apparent damage. But if it will not start after reassembly, the natural step is to take it to a marine dealer.

Most commonly, motors are dunked under two sets of circumstances. One is at the pier when attaching a motor to a boat already in the water. The other is when clamp screws work loose while running.

The best remedy is to play safe. When attaching a motor at a pier, take extreme care to avoid dropping it overboard. The best thing is to have some help—someone to steady the boat if nothing else. Always check clamp screws frequently to see they are tight. A final precaution is to secure the motor to the boat with a safety chain so it won't drop in the water if it does work loose.

pairing or replacing the equipment. You'll be money ahead if, when you renew your policy each year, you insure your equipment for only its current value.

Since insurance is a detailed and sometimes confusing subject, it's best to consult a qualified insurance agent whenever you have a question. Have him explain the different types of coverage available and choose the one best suited to your needs. Being properly insured will give you peace of mind and make your boating even more fun.



STREAM NOTES

On October 15 I received a complaint that a channel change was being made on a certain trout stream which the Commission stocks with trout. Knowing that no permit had been issued for this operation, I made the necessary investigation on the 16th and made a report on the same date to the Chief Enforcement Officer in Harrisburg. On the 18th instant I received a letter from the Chief stating the matter was being handled. On the 19th I received a copy of the letter that was sent by the Department of Forests and Waters to the party responsible for making the change. The contents of the letter stated that the person was in violation by not having obtained a permit and that the channel was to be restored to its original course by November 1. This order was carried out. It is suggested that people think twice before running a bulldozer in a stream and disturbing its bed and banks!-Willard G. Persun, District Warden (Bradford).



A friend of mine on a fishing trip to Canada told me his Canadian guide suggested fishing for pickerel. Having fished for pickerel in Pennsylvania the suggestion was bypassed in favor of the bass fishing. On the final day at the lodge another angler came in with a nice catch of walleye. He then asked his guide why he hadn't told him there were walleye in the lake. To his surprise the guide replied, "I asked you if you wanted to fish for pickerel and you said no!" My friend's reaction was . . . "why are walleye called pickerel in Canada?"—District Warden Kenneth G. Corey (Warren).



Lyman Run Lake has been a popular angling spot since it was stocked in September with nice brown trout. Anglers have been doing very well on wet and dry flies, live minnows and worms. Then, on October 24 a blizzard hit the vicinity shrouding the entire area. When the curtain of snow lifted, out on the shore line were some hardy fishermen fighting the wind, snow and 30-degree temperature.—District Warden Kenneth Aley (Potter).



On October 20 (first day of duck season) I arrived at Glade Run Lake about 10 a.m., and checked 22 fishermen. By 1 p.m., legal time to shoot ducks, all the fishermen had gone home leaving the lake to the duck shooters. I thought this showed either the anglers were good sports or they were afraid of getting poked with chilled shot.—District Warden Clifton Iman (Butler and Beaver).

Retired Commission Personnel



GUY E. MOYER

Guy E. Moyer was first employed by the Pennsylvania Fish Commission in the Propagation Division on August 21, 1919. He retired on August 24, 1962, after 43 years of service. At time of retirement he was classified as a Fish Culturist. Mr. Moyer was born in Boggs Township and received his education in Spring Township. He is married to the former Kathryn Smith and they have five children.



RALPH D. HENDRICKS

Ralph D. Hendricks retired from service with the Fish Commission on August 24, 1962, after 18 years of service as an equipment operator at the Linesville hatchery. Mr. Hendricks was born in Linesville or August 12, 1897, and attended school in that area. He is well known throughout the state via his many years of distributing fish of all species in all counties of the Commonwealth. He is married to the former Vida Sherretts and they have two children: a daughter residing in Linesville and a son in the U. S. Marine Corps now stationed at Cherry Point, N. C.



John J. Wopart was first appointed to service with the ish Commission on January 1, 1928. He was a laborer, breman and then hatchery superintendent at the Comission's Pleasant Mount hatchery, serving for nearly years. He was born in Archbald, Pa., attended hools in the area and was a mine foreman before applyment with the commission. He is married to the ormer Mary McCabe and they have one son. Mr. Jopart plans to retire to Florida with his family.

Former Commissioner Dies

W. M. (Dick) Roberts died at his home in New astle, Pa., on October 29 last. He was appointed to e commission on April 3, 1946, by Governor Edward lartin to fill the vacancy of Fred McKean. Born in Vashington, Pa., Mr. Roberts attended local schools and Washington and Jefferson College. He served until aly, 1947.

The Worst Violator of Them All

An alarming feature which is disturbing professional enforceent people, is the increase in violations of juvenile hunters and shermen. We like to think ideally of the sportsman parent who kes his son to field and stream and teaches him the true hics of sportsmanlike conduct. We have all heard the slogan, Take a Boy Fishing!" We still believe that most fathers want teach their sons and daughters to be sportsmen and to know and obey game and fish laws.

If you "Take a Boy Fishing" and then catch enough extra sh to fill out his limit, are you teaching him anything about cortsmanship? Will a youngster who has been taught by his ad to hold fish and game laws in contempt grow up with the oper respect for any other laws? Any parent who knowingly willfully violates fish or game laws in the presence of a venile is probably committing the worst violation of all, that helping to train a new generation to cheat and chisel to get ore than their share. In a day when conservation is finally ging given the emphasis it deserves, let's try to train our kids good sportsmanship and ethics rather than in how to be a hiseler, fish and game hog.—Len Hoskins in Nevada Wildlife

Flies and Fly-tying

THE ADAMS

By ALBERT G. SHIMMEL

THERE is a marked contrast between the weedy waters of Penns Creek and the dark, cedar-stained waters of Michigans Au Sable. To fish them within three days when summer is just beginning, is an experience that comes rarely. Finding a single fly pattern that will prove effective on both waters within this short time interval is very improbable.

There was a hatch of caddisflies coming off the weed-choked pools of Penns Creek. The afternoon temperatures had been flirting with the ninety-degree mark. An hour after the sun left the water the trout began to feed along the edge of the weed mats. A nine-foot, six X leader and a number sixteen Adams fooled them completely. These were not sluggish fish fresh from the hatchery but thick, brightly colored fish that had grown fat and heavy from the abundant food flourishing in the limestone silt. We laid our flies at the edge of the weed pockets with the line and leader lying on top of the weeds. We hooked them with ease. Landing them was another matter. When a large fish is hooked and dives into a weed mat it is a miracle if the terminal tackle is not broken. There were occasions that evening when the miracle happened and we made a respectable catch.

Two evenings later, at the Big Bend below Cunningham's landing, on the Au Sable, my partner filled the legal limit of ten pounds and one fish by catching five fish on six casts. The fly that lured those trout was a battered Adams that had been well mauled by the Penns Creek trout. Truly the Adams was home with a vengeance, for this was the very stream on which the pattern was born. There was a bit of disappointment in the evening's sport. The angler was catching the fish that lay between his stand and the real trophy, a brown that rolled up occasionally and showed a side that seemed as wide as a canoe paddle. The last fish, a slashing three-pound rainbow, created such a disturbance on being hooked that the big fellow was put down. We never saw him rise again.

The Adams is easy to construct. The wings are a pair of grizzled gray hackles from a Barred Rock, tied spent. The tail and hackle are brown and gray grizzled mixed equally. The body is on muskrat fur spun tightly on the tying silk and tied so as to produce a neat slim body. The hackles are kept small so that the fly rides close to the surface. The fly fills the color gap between the brown and gray flies. Carry in all sizes from twelve to eighteen with the emphasis on fourteens and sixteens.

The body is sometimes made of clipped deer hair from the neck of an old buck. This fly will ride the surface of rough water and when properly dressed is almost unsinkable.

New Year's Recipe . . . Take twelve fine, full-grown months; see that these are thoroughly free from all old memories of bitterness, rancor, hate and jealousy. Cleanse them completely from every clinging spite; pick off all speeks of pettiness. Cut these months into 30 or 31 equal parts. Do not attempt to make up the whole batch at one time, but prepare one day at a time, as follows:

Into each day put equal parts of faith, patience, courage, work, hope, fidelity, liberality, kindness, rest, prayer, meditation. Add about a teaspoonful of good spirits, a dash of fun, a pinch of folly, a sprinkling of play, and a heaping cupful of good humor. Pour love into the whole and mix with a vim. Serve with quietness, unselfishness and cheerfulness.



Rambling Rainbow's Jaw With Tag

Maple, Ontario, Canada November 6, 1962

Pennsylvania Fish Commission Harrisburg, Pa.

Dear Sirs:

We are enclosing fish tag No. PFC-E 779 together with card received from Sam Ottley, 56 Whyte Avenue, Thorold, Ontario, regarding the return of a tagged rainbow trout which was recently caught in the east side of the Welland Canal. We would appreciate if you would kindly contact Mr. Ottley direct and advise him regarding the detail of your tagging project.

C. H. D. Clarke, Chief Fish and Wildlife Branch Ontario Dept. of Lands and Forests November 16, 1962

Sam Ottley Thorold, Ontario, Canada

Dear Mr. Ottlev:

Thank you for taking the time to send in the tag taken from a tagged rainbow which you took in your nets. Statistics on this fish are as follows:

Species—Rainbow trout

Tag No.—PFC-E-779

Date Released—April 28, 1961

Length When Released—7.5 inches

Point of Release—Crooked Creek, Pennsylvania, about 10 miles west of the Port of Erie

Date of Capture—Unknown—Fall, 1962

Length at Recapture—20.25 inches

Weight at Recapture—5 pounds, 2 ounces

Girth at Recapture—12.25 inches

Point of Recapture—East side of Welland Canal (a distance of about 75 miles)

Your return is one of several we have received in which the rainbows undertook extensive migrations. At least one was taken below Niagara Falls.

Gordon L. Trembley Chief Aquatic Biologist Pennsylvania Fish Commission

My resolutions never last for one reason or another . . . they all seem to go in one year and out the other.

Now comes the coldest season of the year, when the days are shortest and so are we.

Dr. Albert S. Hazzard Assistant Executive Director Pennsylvania Fish Commission Harrisburg, Pa.

Dear Dr. Hazzard:

Enclosed is a photograph of some unusual fish caught in th Allegheny River just below the flood control channel in Couders port. They were taken on worms by some youngsters.

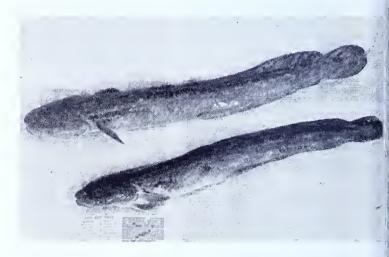
A friend of mine has identified the fish as eel-pouts, Arcti ling or cusk but I have been able to find next to nothing in the encyclopedia. The kids caught about ten of these slimy creature in the same hole ranging in length from 12 to 18 inches or more

Can you give us any information on them?

Bill Fish, Jr.
The Potter Enterpris

Coudersport, Pa.

September 2, 1962



September 18, 196

Mr. William D. Fish, Jr. Managing Editor The Potter Enterprise Coudersport, Pa.

Dear Mr. Fish:

Your friend was correct in his identification of this fish: the burbot, *Lota lota* (linnaeus). This fish is also common called the ling or eel pout.

The burbot is the only representative of the cod family four in fresh water in this part of the North American continer Records of the burbot outside Lake Erie and its tributaries a very rare in Pennsylvania and we are especially interested its showing up in the upper Allegheny River. It is quite popular fish in some of the Western trout waters, that : Wyoming and Montana, and some of the local people fish for them—especially to smoke them. As in the case of the sal water cod, these fish are excellent smoked but they also mal good fish cakes and I have eaten a very fine chowder manfrom Lake Erie burbot.

Although the burbot is somewhat predatory in its habits, food consists mainly of bottom organisms and, in turn, t young furnish feed for such fish as bass, walleyes and trout.

Sincerely, Albert S. Hazzard Assistant Executive Direct

CHANGING ADDRESSES??

Send both old and new address to Pennsylvania Fish
Commission, Harrisburg, Pa.

BIOLOGY BRIEFS

Hybrid Pike

by KEEN BUSS

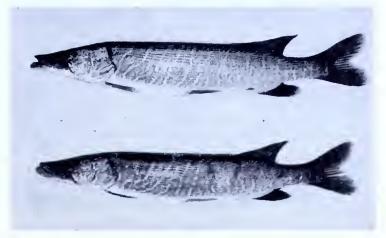
Fishery Biologist Benner Spring Fish Research Station Pennsylvania Fish Commission

Man's curiosity is responsible for all the wonderful nveniences, the high standard of living and the arantee of longer life which we enjoy today. Many the things which we routinely accept today developed om basic research—research which had no practical plication at the time. Many of these probing experients were conducted because of man's innate curiosity a desire to learn more about the living things around n. Into this category fall the hybrid fish experiments. nese were designed to determine if different species ould cross, and if so, what could be learned.

Hybrid trout experiments at Benner Spring Fish esearch Station explained many things that were not own about trout. For instance, one of the many things at was established is how nature keeps her species parate. This does not seem to have practical applicaon at the time but eventually all of the information on brid fish will slowly fit into a pattern which will d to a better understanding of nature's processes.

One of these "curiosity" experiments which involved tle time or money was initiated at the Union City atchery under the direction of foreman, Roy Sorenn. He crossed a female grass pickerel which scientists Il Esox americanus vermiculatus to a male northern ke. After the young were hatched, they were transrred to the Benner Spring Station where they were aced in small dirt ponds. When they were in their cond summer on August 11, they were weighed, easured and photographed. These fish were from elve to fourteen inches in length and weighed a little ore than ten ounces. The growth was probably greater an the grass pickerel since a grass pickerel rarely ceeds fourteen inches at any age. However, the color ttern was not the light bean-shaped spots on the les, so typical of a northern pike, but tended to be ore like the grass pickerel. The accompanying photoaph of these hybrids is of a 12.5 and 13.1 inch fish. It is well known that these species hybridize in ture but are these hybrids fertile and will they thereby ect a natural population of northern pike? This ring, if they survive the winter, they will be tested d, if mature, will be spawned. Then it will be known nether grass pickerel affect a northern pike population if nature has developed a mechanism to separate e species.

Man's curiosity not only leads to better living, but entually to better fishing.



HYBRID PIKE resulting from crossing a female grass pickerel and a male northern pike.

Winter 2uiz

By CARSTEN AHRENS

Your favorite trout stream is frozen along the edges; the hemlocks and rhododendrons bend beneath their loads of snow. The mammals that were more aware of you last summer than you were of them are probably hibernating. Let's see if you can find them in this quiz:

(Nine or ten right: AMAZING. Seven or eight: Average. Six or seven: AWFUL.)

- 1. Bat
- A. A pad of cotton or wool . . . or a spree . . . or a club used in cricket and other sports.
- 2. Ground Hog
- B. What you would like to be at this moment if you were off the coast of Florida.
- 3. Mole
- C. A hamburger.
- 4. Beaver
- D. It sounds like the name of a songbird or a family name.
- E. A constellation . . . or to
- 5. Shrew
- carry . . . or to be fruitful . . . to support . . . but none of them seems to fit him very
- ___ 6. Fox
- F. Part of a knight's armor . . . a gentleman's high hat . . . or a heavy woolen cloth.
- 7. Bear
- G. A scolding woman . . . who probably has a husband off on a fishing trip.
- 8. Weasel
- H. Noted, at least in song, for its old man.
- 9. Fisher
- I. A break water . . . a "beauty spot"...a gram molecule.
- 10. Marten
- J. To repair the uppers of shoes . . . to discolor . . . to de-

ceive . . . or to turn reddish brown.

A-1, C-2, I-3, F-4, G-5, J-6, E-7, H-8, B-9, D-10. **YXZINEKS**



LAKE WALLENPAUPACK PRIZE, a 14-pound, 33-inch walleye, caught by Chester Andrejiwski, Wilkes-Barre, Pa. The fish, held by Zack Fabri, of Lakeville, Pa., was taken from a boat dock on a nightcrawler, took 20 minutes to land and is reported to be largest walleye to be taken from the lake.

-Robert Jennings Photo



CHARLES RUNCO, Throop, Pa., with two largemouth bass he caught at Lake Ariel, Wayne County, last September 7, on a jitterbug at night. The bass on the right was 20 inches, 6 pounds; on the left the fish was 19 inches long, weighed 3½ pounds.



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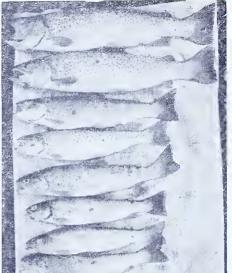
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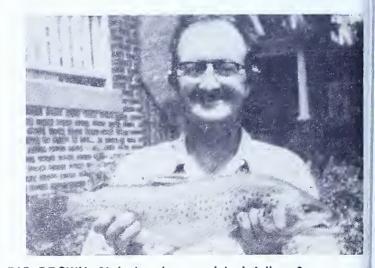




VETERAN ANGLER, Grant Sherman, of Coudersport, Pa., is 78 years young and he took the trout in the photo or worms from the flood control channel of the Allegheny River in Coudersport, Potter County. These eight brown trout, ranging from 10 to 15 inches, were caught one afternoon late last summer. Mr. Grant fishes from the bank of the stream behind his home from a chair because he's unable to move around up or down stream for any distance.—The Potter Enterprise.



THIS CONNEAUT LAKE musky went 50 inches, weighed 3 pounds taken by John Shanley, Meadville, Pa., on October 1 last. The big fish hit an artificial minnow trolled deep an battled over 20 minutes to land with the help of fishing parner, Bill Humes, also of Meadville.—Edward Gray Photo-Meadville Tribune.



BIG BROWN, 23 inches long, weighed 4 lbs., 9 ounces, we caught in Spring Creek between Robesonia and Wernersvilast season by John M. Ash, of West Reading, Pa. The brotook a small stink worm on a No. 12 hook on a fly rod. A inch brook trout was found in his stomach.



Of Course We Know Christmas Is Over, Folks...! But... We Just Cannot Get Him to Leave!

And . . . don't you leave this page until you clip the coupon on page 24 for your subscription to the Pennsylvania Angler

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Pennsylvania Angler



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Pennsylvania's New Governor Hon. William W. Scranton

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COMMONWEALTH OF PENNSYLVANIA GOVERNOR'S OFFICE HARRISBURG

TO THE FISHERMEN OF PENNSYLVANIA:

Your new Administration is dedicated to the belief that one of the most valuable resources of our State is our wild life, including the fish which swim in Pennsylvania's streams and lakes.

As part of our conservation and wild life program, fishermen of Pennsylvania can look forward to sympathetic and progressive activity by their State Government.

I as Governor and my entire Administration believe in the great value of fishing, not only as a sport, but as one of the most attractive assets we have to offer people and industries from other states.

Sincerely yours,

Bill Scranton

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FEBRUARY, 1963



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GEORGE W. FORREST, Editor

JOHNNY NICKLAS. Photographer

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SPITTIN' ON THE BAIT may be horrible "etiquette" elsewhere but when a fisherman does it for luck . . . it'll have to do until something better comes along.

"Number thirteen is all I have left," said motel owner to the middle-aged gent who plainly hinveigled his rapt wife into her first fin-and-scenarion.

"No thanks!" exclaimed the fortyish fisherman, acing as he departed, "You shouldn't even have a numl thirteen room!"

This little incident, illustrating the sensitive vigor enduring superstition, isn't an imaginative one; it an established fact! Indeed, it is so valid that so motels have no number thirteen room and many moteourts under construction are skipping the disreputanumber altogether. In one case, a lady motel own had so much trouble with room 13 that she finally coverted it into a storage place for lawn furniture.

But the number thirteen is only one facet of commanderican superstitions. Nearly everyone—from jock to fisherman, from woodchopper to executive, and from baseball player to expert boatman—nurtures a few properstitions. Very often these "absurd" convictionare personal ideas not to be trifled with by curic meddlers. But on other occasions an individual does he he sitate to declare his dread of broken mirrors a black cats, or to affirm his faith in lucky coins, with bones, rabbit's feet, etc.

In the credible accounts of peculiar notions amore Homo sapiens, anglers seem to have, in addition many standard superstitions, a pretty nifty assortment of their own. One of the best known of these is ritual of spitting on the baited hook before making cast. The purpose of this untidy but very old practices, of course, a bid to mollify the disposition of Landau and the course, and the course of the cours

Its Lasting Powers of Persuasion Are Widespread-Even Fishermen Are Often Swayed by That
Strange Influence Called

000000000 SUPERSTITION 00000000



By WILBERT NATHAN SAVAGE

uck. In some circles it is even sagaciously proper to rich the "fish-attracting" juices through chewing rious additives—anise roots, birch bark, tea leaves, c. Repeated cold proof that the system never produces sults seems to strengthen rather than weaken staunch dlowing of the wacky habit.

Ancient in origin but widely upheld was the yesterar belief that scattering certain "good luck" berries the water would bring success to the angler. The could be effective only if performed before a crude ok was baited or a pole touched at the fishing site, bit of research uncovered evidence that this superition was well known to the American Indian, which dicates that the palefaces who adopted the practice puldn't very well be rated as "heap hep."

Another fairly common superstition—and one still oderately in vogue—warns that a severe span of bad ick will surely follow the trading of rods or any parts sereof while on a fishing trip. But take heart, all beevers! For any number of swaps can safely be made thome since the "whammy" frowns only on awayrom-home bartering urges.

Many intelligent, modern-day anglers are not ashamed admit they like to start a new season with the very ame fly they last used in the preceding year. And rom coast to coast you can find anglers who believe it bad luck to step over a fishing rod while its hook in the water.

The American Indian believed it was very bad luck of discover that a dog was following him on a fishing ount. A special incantation was necessary in order to reak the evil spell—after making certain the dog had een driven back out of sight.

When next you observe a dragonfly (you may also now the insect as "devil's darning-needle," "horsetinger," or "snake-feeder") along a favorite stream, onsider the absurdity of the old wives' tale which ffered strong assurance that the winged scoundrel has ong worked regularly at the task of sewing up the yes and ears of children. This belief, which still may xist in some remote areas, was so widespread that it referred to in some of the better up-to-date encycloedias; and Nature Magazine once dealt with the supertition and called it "utterly foolish, since the dragony actually characterizes a relentless hawk in destroying armful insects, including mosquitoes. . . ." And you an safely bet your finest pair of waders that the quickarting creature has never been known to sting horses r feed snakes!

Back over the years, some fishermen believed that errible luck was sure to trail anyone who permitted iscovery of favorite fishin' holes. Others were certain t was unlucky to whistle or sing in a canoe; and some hought the boom of doom would be lowered if they hould sell all or any part of their catch. And to see "a vig, a rabbit, or a lone crow" while going fishing was the ery worst kind of a sign that tough sledding was ahead.

Analogous to the scattering of lucky berries on the vater was the old-time practice of offering something



to "set aright the moods of *Pisces*." A small coin, tossed into the water, was generally considered a fair gift to the glittering constellation of the fishes. But the bribing token could also be bits of food, herbs, tobacco, cloth, etc. Sometimes the sacrifice was accompanied by a chanted bit of hocus-pocus; and almost always the whole affair could be carried out only if *Pisces* was enjoying its periodic position of "advantage" over other star groups in the zodiac belt.

To this day, fishing during the fecund cycle of a particular sign in order to gain greater rewards from the piscatorial gods is so extensively popular that a number of almanacs still carry "Best Fishing Days," "Poor Fishing Days," etc.

Of all the celestial influences, probably none is more important to the fisherman's luck than the moon. Many people insist that fish bite best when the moon is on the wane. The author knows personally a very successful bass fisherman who goes after bass *only* when there is no moon at all—and the darker the better! Topping off accounts of lunar power over fish behavior, one superstition (origin: Arkansas) couples it with a wise bird and declares that if you hear an owl hooting in the daytime during the dark of the moon, . . . "get out your skillet and commeal and butter 'cause the big 'uns are a-waitin' to be taken. . . ."

The wind, so it has long been claimed, can be either a helpful or harmful factor for the fisherman. When it is in a mean mood we're told that fish figure in the situation in this manner:

Wind in the east, bite the least.

But on the other hand:

Wind in the south, hook in the mouth.

Or, even better:

Wind from the west, biting the best.

And still another, to round out the directions:

Fishermen in anger froth

When the wind is in the north.

Some anglers are "morning" fishermen; others swear by the wisdom of afternoon or evening fishing. There's even a school of midnight fishermen, but the angler vigorously favoring midday fishing is a rather scarce item. Quite frequently a superstition of one dimension or another is back of the various preferences. A boyhood impression, good or bad, but based on an unaccountable happening, often creates a spooky conviction strong enough to last a lifetime. Something as simple as a four-leaf clover may function for the good side of the picture (thousands of people still eagerly pick 'em at every opportunity!); and on the unlucky side the agent of evil can be anything from a toad accidentally touched to Black Friday or a genuine Pennsylvania hex. The latter, without an approved charm to overcome it, has reputedly put many a man into uncomfortable situations with such punishing critters as copperheads and rattlers. The fishing hex, only moderately bold, usually flees if confronted by "a mustard seed, a rose seed, and the foot of a weasel." And don't forget, all you exacting fishermen, there are no substitutes for these three items!

Ridiculous, you say? Well, perhaps—but how about the space-age fisherman who was caught with a rabbit's foot in his pocket? Or the one with a horseshoe carefully secured above the entrance to his den? Consider, too, the angler who has carried the same lucky coin for the past twenty-seven years—and would rather fight a wildcat than part with it! Of course we also have the old outdoorsman who still carries a horse-chestnut to ease the misery of his rheumatism. Whether any superstition is ludicrous or not depends entirely on who is analyzing what.

Superstitions involving fishing in one way or another have hinged on just about anything from cats to comets, and from badger grease to pulverized indigo. Some beliefs included the building of "lucky" fires before baiting the beardless old-time hook; and certain small bones of several special animals have in the past received much higher acclaim than the detached foot of any bunny. Also benefiting the fisherman we trace a master hodgepodge of handkerchiefs, eel fat, bumblebees, asafetida, ladv bugs, salt, and new wool socksall holding alleged efficacy in the realm of mystic whims, if you know the secret of making them work for you. On second thought, however, and at this juncture, you may be just as well off if you don't know. You doubtless have your own pampered beliefs in the workings of talismans, amulets and such. Don't add on untried new superstitions-stick with the highyielding old reliables. Mixing 'em might just cause friction and call for corrective devices in the form of counter charms, spell-binders, exorcisms, divining rods and all sorts of other cunning gizmos!

Just keep spittin' on your bait and let it go at that....

BALD EAGLE CREEK

By GEORGE HARVEY

The following is condensed from the book, 100 PENNSYLVANIA TROUT STREAMS, compiled and edited by Jim Hayes, and published by H. C. Suchr Co., Steubenville Pike, Pittsburgh 5, Pa. (\$2.00).

Of all the challenges that angling affords, the supreme challenge is fishing for big trout in a big stream. No matter he accomplished a fisherman might become at taking 16- to 21-in trout, this is one phase of the game that separates the matter from the boys.

There are a number of streams in Pennsylvania that contact trout over the 24-inch mark. But if you want to fish a stream that has a lot of them, try Bald Eagle Creek in Centre Countries is a stream that regularly produces brown trout from 4 to 8 pounds, and occasionally trout up to 10 and even 12 pounds.

Over the past 25 years the junction pool at the mouth Spring Creek has yielded an average of 20 to 30 trout, the pounds and over, every season. Bald Eagle Creek recent yielded a 27-inch brown trout under the bridge at Julian. You will hear of some enormous trout below the dam at Howard, a of more lunkers in the stretch below the mouth of Fishing Creek.

There can be a world of difference, however, between a consistently good trout fishing stream and a stream which regularly produces trophy trout. The reputation of Bald Eagle Creatists based to a large extent on its big trout. Unfortunately, mananglers, hearing of the stream by reputation, come to it expecting great things. And more often than not they are said disappointed.

On a season-long basis, Bald Eagle Creek is not a streyou would recommend for practical trouting. After mid-June least four-fifths of the main stream becomes marginal. It miles and miles of barren, unproductive water. Within the marginal stretches, however, you will find occasional springhound deep pools where the big trout can find relief from he water temperatures.

One of my favorite stretches is the two-mile section betw Curtin and Mount Eagle. While the fishing is spotty, extrem so during June and July, the area contains many sizable tre I am thinking now of one particular pool where the large trecruise out of the deep water to forage in the shallows at mouth of a small, spring-fed brook. It was here, in late July 1956, that I saw a half dozen trout, none of them under f pounds.

Fishing after dark, I managed to hook and subdue one those fish. It was a brown trout, 26½ inches long, weight pounds 4 ounces. That fish, incidentally, was consider smaller than the largest trout I observed that night in beam of my flashlight.

If you go to Bald Eagle Creek any time after mid-June with idea of bringing home a mess of trout, your best bet wilt to limit your fishing to the tributary streams. However, if y goal is to take a trophy trout, and you are willing to rework to get one, then be prepared to do a lot of exploring in main stream. Using a stream thermometer, seek out the zones where the trout are likely to forage at night.

After you have found several likely locations, try them a dark with either wet flies or bait. Hot, dark, calm nights usually best. Be prepared to spend several nights at each lition before you write it off. If you keep at this long enorand if you are either very smart or very lucky, you well find yourself tied into a trout so big you will wish had never heard of Bald Eagle Creek, much less gone the

That's what keeps me coming back!

Cussewago Creek Improvement Project

By KEN WILLIAMS

(Meadville Tribune Outdoors Writer)

Meadville Sportsmen's Club officers and committeeen have done a lot of work recently on a Cussewago reek stream improvement project just west of Dunem Road bridge.

And still more work is scheduled, if the water level ops back shortly, on this plan for improving fishing d boating in summer seasons or other low stream crieds

An old gravel bar several hundred yards west of e bridge, and not far from the original Cussewago am off Race Street extension, had eroded away until ery little of it was left. This contributed heavily to a op of the stream level in summertime to far below estomary stages.

Sportsmen's Club committeemen, feeling that this ondition ultimately would have proved detrimental to be recreational value of the Cussewago, set about to aprove the situation. They worked for some weeks eplacing the former gravel bar with concrete waste aterials.

Joe Byham, chairman of the Club's Fish Committee, and others hoped that the stream level above the area ould be raised about a foot above its recent low-water vels. He and Art Webb, president of the sportsmen's roup, emphasized that the project "will affect the ream only during the dry season when even a slightly igher water level is important to the fish population."

Good Murky Water

The Cussewago, which enters French Creek northest of Mead Avenue bridge, long had been known as ne of the better muskellunge waters of Pennsylvania. The both the size and number of 'lunge caught out of the stream in the last few years have been decreasing, eteran anglers say.

Webb said interest had been shown in the project by ne Pennsylvania Fish Commission, as well as Sportsnen's Club officers and members. The plan was origiated by Clyde Beers, a widely known area musky sherman. Club members have provided volunteer bor and the organization is supporting the project nancially.

Creek Rising

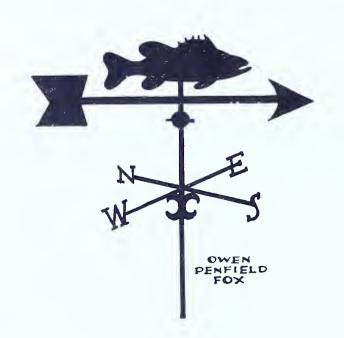
Material placed in the creek at the narrow neck of ne gravel bar west of Dunham Road bridge stretches 0 feet from shore to shore. The "dam" is about two set wide at the top and perhaps two feet deep. Last ime work was done on the project, the temporarily igher Cussewago Creek waters flowed atop the fill.



OPERATION STREAM IMPROVEMENT on Cussewago Creek, Crawford County, placing stone, bricks and crushed concrete in stream to stabilize the water level. Working the project are Roy Neff, Wayne Wolfe, Joe Byham, Clyde Beers (on the end of the wheelbarrow) and Otto Seaman.

ADDING THE SMALL DAM has raised the summer level of Cussewago Creek and it is now boatable for almost two miles. Viewing completed project are: Harold Crist, Otto Seaman, Joe Byham and Art Webb, president of the Meadville Sportsmen's Club.





Our Climate and

Our Weather

CLIMATE is one of the greatest upsetters of human plans and activities. It dictates our economy, what we wear, the kind of house we live in, the sort of food we eat, how hard we work, and even when and where we spend our vacations. Farmers and industrial magnets must bow to it; all animal life, from insect to elephant, lives and dies under its rule.

Mankind has never known a "normal" climate. We are at the tail end of an ice age, living in a time following a period of climatic violence as great as any the earth has known. Several of these periods can be traced in the earth's crust, and between them there have been long ages of genial climatic uniformity, looked upon by geologists as "normal" times.

Climate runs in cycles. Our oldest rocks reveal gravel deposited under physical conditions not greatly different from those of today.

We are all familiar with the daily cycle in the temperate zones: a maximum temperature in early to midafternoon and a minimum shortly before sunrise. The annual range is also familiar, through the variety of temperature, rain, snow and wind that makes up spring, summer, autumn and winter.

Next in significance, probably, is the widely-accepted 11-year cycle corresponding to the cycle of sunspot frequency. Records kept for more than two centuries show that sunspots wax and wane in number and extent twice in about every 23 years on the average. Since the sun is the source of our heat and the basic cause of our weather changes, it is natural enough to

suppose that cycles of weather should correspond such changes in the sun's condition, although this not yet proven.

It Is Getting Warmer

One point about which there seems to be gene agreement is that the earth's surface is getting warm Back in 1949, Professor G. H. T. Kimble and Profesor F. K. Hare, both of McGill University's Deparent of Geography, totted up the score for this sumer, added it to their charts and decided that we well on our way to a new type of climate in the coutries bordering on the Atlantic coast.

Summers, they say, are getting progressively hot and longer; winters are milder. But, they hasten add, our historical records go back only a short d tance—merely for seconds on the clock of the eart progress. The present trend, detected in the 1880 "may be just a shiver in the world's weather, but might also be the road back to a much different climater."

We are rising out of a cold period that had greatest depth about 1,500,000 years ago. Glaciers over the world are receding rapidly; the permanent frozen subsoil in northern Canada is melting slow ships can now reach Spitzbergen, north of Norw during nine months of the year instead of the th months of 40 years ago. When we are entirely out the Ice Age there will be forests in the interior Greenland where the ice is now two miles thick.

Climate and Food

No other earthly force can so mold civilizations as change in climate. Men are pushed forward impetusly in some regions and held back to a sluggish pace others, both physically and mentally. We think and t because of the burning of food in our tissues, and e speed of this burning depends largely upon the pe of our food and exercise. Exercise steps up the te. If the temperature and humidity are too high, ir body temperature rises quickly. We are soon postrated. So we learn to take it easy in the tropics. Availability of food is important. We have seen gae, a low form of plant life, thriving in hot springs 200 degrees; there are Siberian Arctic plants whose ot-systems survive short periods of 90 degrees below ro air temperature; but most plants grow within a urrow range. For each degree of latitude north of le Equator and for each 400-foot increase in height ove sea level on this North American continent, the te of flowering of plants of the same species is rerded 4 days.

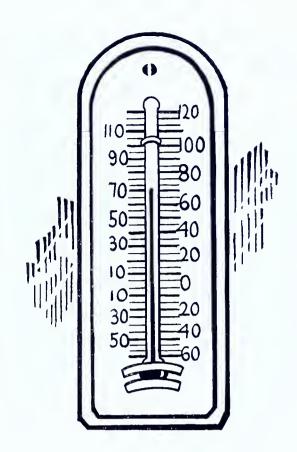
Weather and Health

The weather, which is a fickle actor within a changeole but less hastily changing climate, has much to do ith our health. There is an undoubted connection etween kinds of weather and prevalence of this or at malady. Hay fever belongs to autumn; what is enerally called "lung trouble" is more prevalent in oring than in midsummer; cold damp weather ineases the discomfort of rheumatism. A tropical cliate favors the organisms that cause some diseases ich as malaria and hookworm, and reduces our resistnce to disease of all kinds.

We are the kind of animal that cannot live if our ody temperature varies too much above or below 98.6 egrees Fahrenheit. Through extremes of temperature, com the lowest to the highest the body strives to maining a constant temperature through its own heategulating machinery. In cold weather it speeds up the stee of heat production, contracts its surface blood essels and even produces extra circulation by shivering. In hot weather the surface blood vessels are enlarged to arry heat more quickly from the inside to the outside, and the evaporation of sweat has a cooling effect.

As for the common cold, there probably is no disease nat doctors know they know less about and that everyne else thinks he knows more about. Some people elieve a cold comes from lack of proper food or drink; thers blame their neighbors or a draught.

Pepys, the English diary writer of the 1660's, seems have been particularly susceptible, as some amusing attracts from his diary will show; "Got a cold by sitting to long with my head bare for Mum to comb and vash my ears. . . . Got a strange cold in my head, by linging off my hat at a dinner and sitting with the vind on my neck. . . . Caught a cold through leaving the type waistcoat unbuttoned." Out of all these dire exercisences he evolved a preventive device which will



amaze many medicoes and laymen: "Myself in good health, but mighty apt to take a cold, so that this hot weather I am fain to wear a cloth before my stomach."

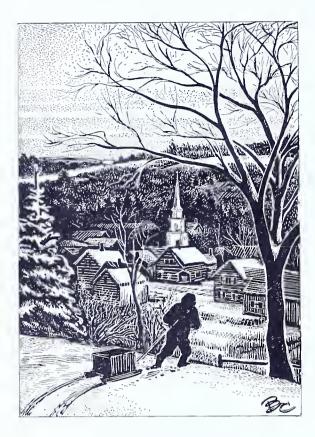
Heat waves, too, bring their perils to Americans. We may have difficulty in subduing our inner fires quickly enough to meet the sudden difficulty in heat loss. Thousands of us may develop heatstroke of greater or lesser seriousness at temperatures that would not bother tropical residents in the least. We are inclined to eat too much carbohydrate (sugar, starch and fats) and then expose ourselves to the sun. This means that we are raising heat inside and absorbing it from outside at the same time.

Wind and Weather

We have become accustomed, since our earliest days, to associate certain winds with certain kinds of weather, and it is surprising the number of times we are right. Yet, say the experts, there is no clear-cut relation between the two. It is possible, says Dr. Kimble, to have drought as well as rain with a southerly wind, and heat waves have accompanied north winds on occasion. It is air masses, not wind directions, that are really significant.

When the difference in temperature between the equatorial regions and the polar regions sets up large-scale movements of air, they are modified by the rotation of the earth, thus establishing a system of alternating wind belts and belts of calm. There are four main belts: the doldrums, the horse latitude belts, the trade wind belts, and the belts of the prevailing westerlies.

The prevailing westerlies are north and south of the horse latitude belts. The air tends to move from the high pressure of the horse latitudes to the low pressure



of the poles, deflected by the earth's rotation so that winds blow from the southwest in the northern hemisphere and from the northwest in the southern hemisphere. The greater part of North America lies in the path of the prevailing westerlies.

Our Water Supply

When air rises, it expands and so cools to a temperature lower than at the earth's surface. Its water vapor condenses, thus forming great masses of minute droplets, and such a cluster of visible moisture is called a cloud.

Many a cloud looks as if it had been put together painstakingly after a year's work of planning and fitting. This is certainly true of the *cumulus*, thick, mountainlike masses often seen on a summer day about half a mile from the ground. The *cumulus* is the most majestic of clouds, moving in stately deliberation, with perfectly formed and sharp outlines which are yet as transitory as a dream. It is said that the great painter, Turner, declared there were only two aspects of nature he would not attempt to paint: the snow of the high Alps and a *cumulus* cloud.

Cirrus clouds are thin, featherlike formations, at a height of about three to ten miles, composed of minute ice crystals. Stratus clouds are flat layers often seen near the horizon early in the day, at a height of about 800 feet. Nimbostratus clouds, our familiar rain or snow clouds, are dull gray, with thinner spots that suggest a slowly-moving light behind the veil. They may be a few hundred feet or a mile high.

An inch of rain is the amount of precipitation on a level moisture-proof surface to the depth of one inch. When we say, for example, that the total annual precipitation at Fredericton is 41.90, that means there is

enough precipitation on the surface where it is measured to cover it, if level and moisture-proof, to a depth of 41.90 inches. As a rule, about ten inches of snow is required to make one inch of water. An inch of rain is 113 short tons of water upon an acre.

Humidity

Humidity is just another word for moisture or dampness, but we mean far more than that when we say "the humidity." That means the degree of wetness of the air. We may express it in a percentage, which represents the amount of water in the air relative to the amount which would be present were the air saturated at the same temperature. A relative humidity of 40 per cent means that the air holds 40 per cent of the maximum amount of moisture which it *could* hold at that temperature: if the air is saturated, the relative humidity is said to be 100 per cent.

When high humidity interferes with loss of heat from the body, because the air is already so moist it cannot take up all the moisture our bodies would like to throw off, we are uncomfortable. Then when a humid spell is broken by a shower our drowsiness may vanish.

It would be useful to have an absolute scale of comfort in relation to temperature and humidity. (Scientists have established 68 degrees as suiting most office workers, and say the humidity should be 60 per cent.) But the making of such a chart runs up against the difficulty that there is a marked difference in wha individuals call comfortable. The work in many office and factories would be improved if temperatures were adapted to the comfort of the normal well people, and let the complaining few put on more or less clothes

Controlling Weather

What we should like, of course, is more orderlines in the weather. There should be some snow and ic in winter, so that we are willing to work hard enougl to enjoy a little leisure when spring comes. Spring should be a poet's delight, with flowers and bees an mating birds, and it should last two months. Summe should be warm enough to thaw the frost out of ou bones, give us the right tint of tan, and grow ou garden vegetables and gladioli to the right size, textur and shade. Autumn should be long enough for us the rest after a strenuous summer, colorful enough the gratify our aesthetic sense, and just cool enough to eas us gently into winter.

Every season should dignify itself by coming in of the proper date. This would enable us to make, see and buy clothes in a reasonably stable way, and to know whether it is necessary to lay in another to of coal.

Till these improvements can be made, the clothin manufacturer, the department store, the coal deale and the consumer must plug along with the aid of Almanacs, the Meteorological Bureau and their ow amateur efforts at forecasting. Perhaps it is better so because if our weather ideals were achieved what should we grumble about?

A Swing Into Winter



USE BOATS of summer are frozen and silent in Misery y off Presque Isle, Lake Erie.

ATING AND SAILING on frozen Black Moshannon Lake, ntre County.





ICE BOAT at anchor on Lake Erie Bay. It's a fast, thrilling winter sport wherever there are vast stretches of slick ice.

EMPTY PIERS, empty slips remain but the boaters have long since left Conneaut Lake, Crawford County.



Boating





A YOUNGSTER who can boast of a boat in the family is a lucky kid. Those many hours spent fishing with Dad will always be remembered. Also remember to check the weather before you stray far from the dock.

Selecting the Proper Outboard Motor

By WAYNE HEYMAN

CHOOSING the right motor to match an outboard hull often presents a difficult problem—even for a surprisingly large number of veteran outboarders who have logged up three or more seasons. The typical mistake is not underpowering the boat, which would be obvious to even the greenest beginner, as much as with overpowering, a fault which often goes undetected.

Perhaps one reason for picking an improper motor might be due to the fact that eighty-eight different models are marketed in the United States under twenty-six name brands. These range in size from the tiny, gasoline operated 17 pounder with a midget 1.7-hp all the way up to the new 1963 MerCruiser, which supplies a giant 110-hp. Trying to pick out the right motor may seem at the outset like a hopeless task, but somewhere in this wide span is the proper engine for your boat.

One quick way of narrowing down the field is first to determine which type of the three basic hull designs you have—displacement, semi-displacement (planing) or true planing. The third and last hull can be eliminated since it is designed primarily for high-speed work and is restricted largely to racing.

The displacement-type outboard is shaped to go through water, and has a slightly curved keel, canoelike bottom and narrow stern. Prime examples are rowboats, dinghies, kayaks, canoes and sailboats. When

launched the displacement-type hull sinks down fa enough to displace the amount of water equivalent to the total weight of boat, motor and passengers. If given sufficient power, the hull pushes or displaces water with its bow as it moves forward. The displaced water if then forced backwards, around the sides of the hull to fall back into position again behind the boat.

A displacement-type boat has excellent load-carryin capacity, but it is not designed for high speeds. It has a natural "barrier" beyond which it cannot be pushe except by big increases in power. For example, an 18 foot displacement boat with a total poundage of 1,08 pounds must displace 1,080 pounds of water for ever 18 feet it moves forward. The motor pushing this boat has the work load of displacing more than 364,80 pounds of water for every nautical mile it travels. Overpower the boat with too large a motor and it wi squat at the stern, drag a large bow wave and wi mishandle badly. Underpower it though, and the trouble is just as great.

The best motor for a displacement-type hull is or that will bring it up as close to its "barrier" speed a possible. Trying to add more power beyond the boat natural limit will only result in fuel waste, por handling and very little, if any, increase in speed.

A semi-displacement or planing hull, as it is more often called, is designed to *ride* the surface, that is as the speed increases, the hull lifts, levels out an skims along on top of the water. However, unlike the hydroplane, the planing hull does displace some water as evidenced by the trough cut in the water and the



IT IS SIMPLE to distinguish the broad, flat-bottom stern of semi-displacement planing hull. This runabout is powered the new inboard-outboard 110-hp MerCruiser designed puposely for better safety and proper planing action.

lling wake of displaced water formed at the sides and thind the hull. This of course is a small technicality nee the semi-displacement hull will plane correctly—tovided enough power is used. Underpower it and will simply lean back and wallow along.

One of the best methods of figuring out the right otor for a semi-displacement hull is to allow one prepower for each 35 pounds of gross weight to be rried. If the horsepower ratio falls below this allowate, planing action fails. Figure the gross weight of pat, passengers, and motor, divide the total by 35, and e answer will be the horsepower required to plane e load correctly. It is always wise to add a few ctra horsepowers, since they do improve control and peration over this bare optimum.



WO MOTORS will not make the boat go twice as fast. They ill, however, give the boat better performance, better aneuverability and power should one engine fail.



Boating Safety Is Many Things

By WAYNE HEYMAN

ONE of the big pleasures of family boating is having the children on board. But sometimes these midget mariners can present a serious problem if simple safety precautions are not first taken. All outboard authorities recommend that every child on board should be equipped with a modern, up-to-date life jacket.

There are many types of life preservers on the market today. These range in style from the approved Coast Guard ring buoys all the way down the line to buoyant cushions. But where youngsters are concerned, it is a wise parent who makes sure his child has the collar-type life jacket. The explanation is simple: Ring buoys are difficult to handle and those pretty floating cushions often require the victim to be an expert swimmer.

Many types of life preservers, such as the inflating belt, are basically designed for older members of the family. If worn by a child, the worst could result. If for example the young wearer becomes unconscious, and many do from shock, the nose and mouth are immersed and the child may drown. Collar life jackets prevent tragedies of this type. In fact, they are so designed the collar keeps the wearer's nose and mouth above water under all circumstances.

With children aboard, some thought should be given to capsizing. If possible, a capsized boat should give a signal immediately. The best way to insure this, is to always keep a portable, hand-operated foghorn handy where some older member of the family can find it after the boat has upset. For night boating, the crafts tool box should be equipped with a number of flares, screwed tightly into a tin can. The flares and continuous blasting on the foghorn will almost certainly attract attention and help.

Thunderstorms are dangers easily avoided. The best warnings, of course, are the weather reports. Look at the newspaper before starting out. If thunderstorms are predicted, you may be pretty sure that you will have a dose of them during the day.

Weather reports are broadcast frequently via radio every day. Take the precaution to tune in on the days you plan a family outing.

MAKE IT A RULE, youngsters must wear life jackets every second they are in the boat. The new life jackets designed for children are light and colorful. The younger folks get used to wearing them and you'll have more peace of mind while afloat.

Action

ON THE ICE AT LAKE ERIE

By JOHNNY NICKLAS

Staff Photographer Pennsylvania Fish Commission



UNDER THE STERN of a Wilmington, Del., tanker tied up for the winter this angler is fishing for smelt with a conventional spinning outfit.





PARKED CARS of hundreds of ice anglers at Erie's water pumping station.

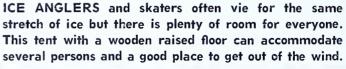


TRANSPORTATION over the ice takes many forms, sleds, skiis, boxes, discs plus anything that can easily be mushed.



WELCOME to spread pretty 'em in.

WINDBREAKS of all shapes, sizes and types are used at Erie Bay. This is a more commonly used canvas break.





STRIKE! A angler but the





re he yanked out a nice



SOMEWHILE LATER, same angler but look at the catch!



FROZEN IN ICE AND TIME, these gizzard shad and mooneyes are commonly seen in the vast reaches of Erie Bay.



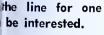
ermen may seem guy start pulling



EVERY TYPE ice fishing equipment is seen at Erie Bay. Simple homemade jigs are very popular.



"HOW'S LUCK?" is the commony query with ice anglers also. One angler looks like he's waist deep in a hole but a closer looks shows he's kneeling on a cushion.



ALUMINUM TYPE windbreak of screen and plastic is well designed, affords good view and light to handle on the aluminum sled vehicle.



STILL ANOTHER TYPE shelter from the winds that whip across Lake Erie ice. Erie granary silos are shown in the background.







Thunde

THE marshy lake shore looked much as usual, but there was something odd about a reed near the water's edge. Though it pointed skyward and blended magically into the mass of vertical stems, swaying with them in the fresh morning breeze, it had a wary yellow eye on each side!

When the breeze subsided and the stalks were motionless, the strange reed became rigid, too, without the slightest movement. That, fellow anglers, was an American Bittern, a triumph of camouflage if ever there was one. Slow and passive, minding his own business, he depends for safety, not on alertness and speed, but on his marvelously protective coloring and imitative postures and behavior. At the first sight or sound of danger he freezes in weird, unbirdlike angles, and becomes a snag or stick, a projecting root, or stems of reeds and the mottled shadows between them.

Four stakes projecting above short marsh grass look like the remains of an old duck blind, but close inspection proves them to be fledgling Bitterns, still too young to fly. With a nonchalance that would do credit to their elders, they are pretending to be sticks.

So successful are these intriguing disguises that Bitterns are more frequently heard than seen, and even the most observant sportsman may pass within a few feet of the large, brown streaked bird and never be aware of its presence. If you do detect it among the cattails and then look away, it is a problem to find it again.

Such confidence do they have in this mimicry that they will often allow the intruder to come very near before they try to escape, and have even been known to play dead, actually allowing themselves to be picked up. When released, however, they fly off, feet dangling, big wings flopping slowly. Once underway this characteristic sluggish take-off changes to a businesslike, noise-

less wing beat which is quicker than that of other herons.

Most fishermen are familiar with the hollow, vibrant call that seems as typical a part of swampy places as the rising mist and chorusing frogs. A half mile away it sounds like a mallet whacking the head of a stake. The two or three notes which are heard at closer range become an echoing boom, and the creaking of a wooden pump. The Bittern's local names include Indian Hen and Green-legged Crane, but the favorites are Stake Driver and Thunder Pumper from these startlingly realistic sounds.

Uttered most frequently in the spring, when they may ring out at any hour, the resounding tones may be heard in summer also, but rarely in the fall. Early rising anglers hear them before sunrise. They come often just after sunset, and sometimes in the middle of the night. In intensity and volume the male Bittern's call is the loudest, most penetrating of marsh noises.

Such an impressive boom obviously has to have an amplifier of some kind, and in the spring the skin of the neck is reinforced with gelatinous and muscular tissue, becoming thickened, loose and wide. The esophagus can then be distended with air to form an elastic bellows, and thus inflated it becomes a resonating organ for the Thunder Pumper's prodigious voice.

If appearances mean anything, the production of this reverberating sound which echoes across the water is no easy matter. The Bittern's violent contortions and excruciating efforts resemble nothing so much as an acute case of nausea. Snapping the bill open and closed, the head and neck are jerked down, then up and forward, there are hiccoughing sounds and the lower throat and breast begin to swell; their dilation increases until the pumping is well started, and does not diminish until the remarkable performance is over.

By MARGARET M. THORNBURGH

umper

Illustrations by Elizabeth W. Leopold

YOUNG BITTERNS on their nest on a typical slough. In the nest are two eggs of the ruddy duck. Some waterfowl species often dump eggs around in a promiscuous manner.—Photo by Martin Bovey, Jr.



FEBRUARY-1963



LEAST BITTERN is a familiar shore bird to most fishermen. Often called the "Shy-Poke," he bitterly resents being rousted from his shore line perch.—Photo by Allen D. Cruickshank from National Audubon Society.

No ugly duckling ever exhibited a more unexpected adornment than the plain brown Stake Driver acquires in the spring. Other herons display beautiful nuptial plumes, but the Bitterns go them one better and parade a wide ruff of white or creamy feathers which seem to grow from the shoulders and spread around the sides. In order to flaunt this surprising ornament they instinctively minimize all their brownness. Resembling a grouse or pheasant, they crouch in unheronlike pose, and run with a smoothly rapid, gliding motion. With body almost touching the ground, the neck is lowered and drawn in until the head seems barely to extend in front of the breast.

The spectacular ruffs, visible to an observer at a great distance, are shaped something like wings, with the tips sometimes pointing straight up, sometimes lowered backward. From the front the area of white appears almost complete, with only the head and a small patch of breast left dark colored. From the side it appears a wide band of white around the inconspicuous body. Their finery, like Cinderella's at the ball, can disappear in a moment, as the white "wings" are lowered, and then hidden by the dark, streaked feathers lying just in front of them.

With a wingspread that varies from two feet four inches to more than four feet, and a body that may be from twenty-four to thirty-four inches long, the bulky American Bittern shows a greater range in size than almost any other North American bird.

The spry and glossy Least Bittern, standing only ten inches high, seems a little fellow by comparison. The female, brown and nondescript, is a sharp contrast to the male, with his handsome markings of greenish lack, chestnut and buff. Though smallest of the heron ribe, they have a stout bill and sturdy legs that can really get around. They'd rather run than fly, and when the water gets too deep for wading, they simply run above it with lengthy steps—no, not on air, but with a swift, straddling gait in the reed stems! Their arge flexible feet were made for grasping, and they clutch a single reed or two or three together, moving with an agility and surefootedness that can hardly be surpassed by a squirrel in a tree.

Literally taking in stride the dense marsh growths that slow and stop their enemies, they are able to compress their bodies to an incredible one inch width and glide through grassy crevices that their pursuers find impenetrable. Since water snakes are an added hazard in this amphibious environment, their unusual "spreadeagle" method of traveling is a great advantage in more ways than one. Even the downy young birds, with wings as yet undeveloped for flight, can progress, escape, and hide in this medium between air and water.

Besides their unusual facility in running away, the resourceful Least Bitterns have three other ways to cope with danger. Most original is the realistic imitation of a broken reed. When surprised on the nest they assume a statuesque wooden attitude with bill pointed straight up, feathers of head and neck so compressed they seem glued to the skin and hardly wider than the bill, and feathers of the lower neck held out in front of the body and narrowed to a point which matches the bill at the other end. The body is flattened into the nest so that the stiff little head and neck seem entirely separate. They hold this position without the slightest quiver of movement until the trespasser is almost upon them.

The second strategy uses a different technique: the straight neck and up-pointed beak are fitted between two flag stems and all the neck feathers fluffed out as fully as possible, the streakings of dark and light merging into flags and the spaces between.

The third method, surprising in a member of the nonagressive heron family, is a plucky and fierce defense of nest and young. Wings are spread, every feather stands out, and the brave defender appears three times normal size. The head is drawn back on the shoulders, the sharp spear of a bill aims for a thrust at the enemy, and this shy bird, much preferring to live in peace and privacy, is prepared to give battle.

Not a boomer, like his large relative, the Least Bittern has a voice that is improved by distance. Heard only in the mating season it sounds, near at hand, harsh and raucous with a touch of the hollow quality. Farther away it becomes soft and cooing, almost like a dove's.

The young have an unusually aggressive method of getting food. When the parent bird returns to the nest the babies, even those newly hatched, jump at his beak until one gets hold of it, seizes it at right angles, and pulls his head down. The young then thrust their bills into that of the adult bird, one at a time, and another feeding is accomplished.

In behavior and characteristics Bitterns are different in several ways from other herons. They are more stolid, less active, and they are seldom seen in the open; they practically never alight or roost in trees, but always on the ground; they are not gregarious, do not nest in colonies, and are usually found singly or in pairs; their flights are low, and for the most part short, as they drop back into the concealment of marshy thickets.

The home territory of Bitterns and their kind decreases every year, as swamplands are drained to supply more acres for cultivation, and as crowding populations expand into untouched areas. Bitterns are a part of the disappearing wild regions that conservationists are striving against such odds to preserve for future generations. Like the quiet water and its reflections of clouds and sky, like the bullfrog's croak and the rustle of dry reeds, the Thunder Pumper's booming voice belongs to the unspoiled remoteness that marks the mood and special fascination of the marsh country.



RETIRED FISH WARDENS



G. MAX NOLL

G. Max Noll, District Fish Warden for Susquehanna County, Northeast Region, has retired from the service of the Fish Commission after 21 years. Mr. Noll was born November 5, 1900, and graduated from Montrose High School, class of 1918. He was formerly employed in the electrical field and appointed a state fish warden on March 12, 1941. He is married to the former Frances Jonas and they have one daughter. Along with Warden Lithwhiler, he was honored at a special testimonial dinner in their dual honor, receiving many fine gifts.

Fish Commission President Maynard Bogart and other Commission personnel attended the affair.



CHARLES C. LITWHILER

Charles C. Litwhiler, District Fish Warden for Montour and Northumberland Counties, Northeast Region of the Pennsylvania Fish Commission, has retired after 20 years of service. He was born on April 6, 1897, was educated in Locust Township Public Schools and formerly employed in the maintenance section of the Pennsylvania Department of Highways. He served in World War I. He is married to the former Anna Viola Crawford and they have four children. Mr. Litwhiler and G. Max Noll were the recipients of many fine gifts at a dinner held recently at Harveys Lake in their honor.

STREAM NOTES

While on patrol last November in the Hallton section of Elk County, I came upon a car parked at the mouth of Spring Creek and figured it was a hunter. Upon further investigation I found a man fishing the Clarion River just upstream from the confluence of Spring Creek. As I checked his license he explained he hunts only rabbits and when he has poor luck at it turns to the fishing rods he carries in the car at all times. I checked his fish bag, skeptical as to what I would find. Along with a few overgrown chubs he had the following: Six yellow perch from 9 to 12 inches; about a half dozen bullheads, 10 to 15 inches and 15 large white suckers. He had fish biting on both rods at once. Irony of this story is the fact the angler was 67 years old, the weather was very cold, windy and raining . . . he was soaked to the skin. As I walked back to my car and thought about the old vet and the miserable weather I said to myself. . . . "Duck hunting-Si! . . . Fishing . . . No!"-District Warden Bernard D. Ambrose (Elk).

Early Thanksgiving morning while at Lyman Run Lake I was surprised to see the number of nice trout held over in the lake from the past season. I watched and counted at least 50 trout feeding on the surface. I was unable to find what they were feeding on but it was definitely a hatch of flies.—District Warden Kenneth Aley (Potter).

#

While patrolling the Susquehanna River near Hoover's Island below Selinsgrove one morning I noticed a flock of American merganser hens feeding on a riffle. Among these colorful ducks was a lone sea gull. I then noticed a flock of gulls flying about this group and each time one of the flock attempted to land, the lone gull drove him off. Some time later the group of gulls flew on. Either our lone gull had laid claim to a harem of merganser hens or else the ladies were stirring up a gourmet's delight on the riffle.—District Warden Richard W. Fry (Union and Snyder).

VETERAN FISH COMMISSION EMPLOYES

The PENNSYLVANIA ANGLER is proud to present this record of long service to the Pennsylvania Fish Commission honoring the following employes as the year 1963 began.

★★-25 Years or more

Dorothy Schaar Albert Besecker Howard L. Fox Jacob Knisely James L. Biddle John C. Lockhart Andrew J. Tate Russell H. Weaver J. L. Zettle Donald L. Houser Neils P. Sorenson T. J. Dingle Metro P. Dorosh Willard T. Ralston Iames E. Stum Merrill O. Lillie Charles F. Stark Julius F. Terry *Deceased

Russell G. Bender James Owen Clark Philip R. Stark Warren R. Hammer George Magargel Roswell Smith Roy Smith Blair Straver John A. Pratt William C. Wert *Paul S. Pechart James H. Banning Norman L. Blum Leland E. Cloos Sam F. Henderson Clifton Iman Cyril G. Regan Glen Spencer

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Budd Sampsell Robert H. Brown Albert S. Brungart Charles M. Burd Alton P. Confer Frederick H. Leitzell James A. May Tony Catalfu Theodore J. Dingle, Jr. Samuel C. Griffey Charles N. LeDane Harry B. Naugle John Seiders W. J. Clark Sheaffer Herman H. Walker Charles Bourke Gordon C. Burdick

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Veteran Commission Employe Dies

Paul S. Pechart, R. D. 5, Carlisle, Pa., passed away recently at his home. He was a veteran of 25 years' service with the Pennsylvania Fish Commission and his name appears on the list of Veteran Employes in this issue of the PENNSYLVANIA ANGLER. He was employed at the Huntsdale Hatchery and was a World War II veteran.

District Warden Kenneth G. Corey (Warren) and Norman L. Blum (Forest and Clarion) reported excellent walleye fishing in the Allegheny River during the cold, frosty nights of late fall, many of these fish in the 26-28-inch class, weighing from 4 to 9 pounds.

#

Walleye and muskie action in the French Creek area was reported good with walleyes up to 10 pounds taken. Anglers had a tough time getting muskie-size bait during the late fall period and this may have detracted from the numbers taken in a fine season.—Raymond Hoover, District Warden (Crawford).

#

While checking two elderly gentlemen at Glade Run Lake (Butler), I noticed two shotguns resting against a tree and I asked them if they were hunting ducks along with their fishing. They told me they had hunted small game from 7 a.m. to 10 a.m., were going to fish until 2 p.m. then play a round of golf until 5 p.m. . . . a full schedule for two retired veteran sportsmen.—Clifton E. Iman, District Warden (Butler and Beaver).

Fishermen on Lake LeBoeuf (Erie) are finding that muskellunge do not prefer large bait in November. But seven muskies were taken on 6-8-inch bait on spinning tackle and these fish ranged from 34 to 45 inches, the largest weighing 25 pounds. **District Warden Norman E. Ely** (Erie).

#

Several nice muskellunge were taken from Gordon Lake (Bedford) in November past. Ray Koontz of Bedford, Pa., caught a 37-inch muskie along with four walleyes between 18 and 22 inches long. Another fisherman from Cumberland, Md., took a 42-inch muskie. On Thanksgiving Day three anglers caught 12 walleyes from Gordon Lake, smallest 18 inches, largest going 26 inches.—District Warden William E. McIllnay (Bedford).

#

The muskie program of the Commission on the North Branch of the Susquehanna River is going well with many anglers very enthused about catching a big one. I have had reports of undersize muskies being caught with one legal fish measuring 31 inches. Fall fishing has been fine.—District Warden, Willard G. Persun (Bradford).

#

Peter Nishnick of Waterford and vice president of Gem City Outdoorsmen's Club caught several undersize walleye in French Creek last year. Before releasing them he would clip a fin. While fishing this past fall he caught an 18-inch walleye that had a clipped fin and he is certain this fish is one he returned the previous year.—District Warden Norman E. Ely (Erie).

WINTER WORKOUT

By GORDON L. STROBECK

Fellow anglers, the off-season is here and it's time to take a good, hard look at your tackle to see if it needs mending. Nine times out of ten some of it does. Your first look into the tackle box is bound to be one of dismay. Quite often you'll find dirty lures with dull and rusty hooks entangled amid monofilament lines and leaders; your reels need cleaning and it seems as though someone had dumped everything together helter-skelter.

"How can I ever get this mess cleaned up?" you wonder. Well that "someone" who made the mess was you, but if you follow these tips you should have no trouble fixing your tackle and you will find you have plenty of time in which to do it.

No, don't dump the tackle box on some old newspapers as you may be tempted to do; repair your tackle in an orderly manner. Remove your lures from the box, checking each as you take them out. Untangle any monofilament lines and leaders still usable and wind them on old line spools. Plugs which need repairs should be kept apart from those which don't.

Now let's clean up that dirty tackle box. You'll find aerosol cleaners extremely handy and time-saving on both steel and aluminum tackle boxes. Then, after your tackle box has been cleaned, you can set it aside and work on your plugs.

That favorite lure of yours is probably all chewed up, if it's a wooden plug; plastic wood, sandpaper and varnish come in handy here. Maybe you need new hooks. Old hooks should be sharpened and rusty ones exchanged for new. (See illustration.) Any of your plastic lures, however, will probably need only new hooks. Remember that the keener your hooks, the more fish you will catch as sharp hooks are surer, easier to set.

Aerosol cleaners are handy for plugs. SOS pads, a little water and some elbow grease will make those old, scratched spinners and spoons shine like new, as enticing as ever.



NEEDLE-SHARP HOOKS are "sure-set" hooks when sharpened via a small hone. Replace rusty hooks, straighten bent ones with pointed pliers.

OLD WOODEN PLUGS take on lost glamour when fitted with new hooks and a coat of varnish or clear lacquer applied.

North American Wildlife Conference Scheduled March 4-6 in Detroit

Albert W. Trueman, director, The Canada Council, Ottawa, will be the chairman of the first general session of the 28th North American Wildlife and Natural Resources Conference that will be held March 4-6 in the Statler Hilton Hotel, Detroit, Mich. William A. Kluender, director, Agricultural and Resource Development Department, Chicago and Northwestern Railway, Chicago, will serve as the session vice chairman and discussion leader.

"Sinews of Security" is the theme of the opening session on Monday morning, March 4. Session speakers will include Fred A. Harrison, vice president, Canadian International Paper Company; Edward A. Weeks, editor, "The Atlantic Monthly"; Marion S. Monk, Jr., president, National Association of Soil and Water Conservation Districts; and Ira N. Gabrielson, president, Wildlife Management Institute.

The North American Wildlife and Natural Resources Conferences are sponsored each year in a major city by the Wildlife Management Institute. Many of the nation's foremost conservation leaders, biologists, technicians, sportsmen, and outdoor writers regularly attend the three-day meetings. All sessions of the conferences are open to the public and interested persons may register and attend without charge. "Conservation's Common Frontier" is the overall theme of this year's conference.

Lehigh Club Elects New Officers

Carl Weiner, formerly of the Executive Committee, has been elected president of the Lehigh Fish and Game Protective Association, replacing Mark Passaro. Dick Jacobs was elected vice president replacing Mike Fedorak. R. P. Stimmel continues as secretary and Bill Minnich remains as treasurer. Ben Roth starts his second term as financial secretary. Filling the four vacancies on the Executive Committee will be Frank Baddick, Harold Plusch, Homer Wambold and Paul Corbiere. Delegates named to the Lehigh County Federation were Calvin J. Kern and Ray Krause. Their alternates are Ralph Rhodes and Mark Passaro.



NOW'S THE TIME

By CHAUNCY K. LIVELY

Someone once made the sage observation that there isn't much lifference between grownups and kids; the grownups' toys just ost more. Most hobbyists accumulate a formidable assortment of the various "playthings" which help to make hobbies incresting—and anglers, with their tackle, fit into this category. If course, there are fishermen who fish happily year after rear (and successfully, too) with a dog-legged old rod held ogether with tape and optimism while others collect customnade rods and rarely use them. Between these two extremes is he average angler who loves to fish and enjoys using a good outfit even when the fish are not hitting.

Winter is the time to look over your tackle and attend to he pleasant chore of getting your equipment in shipshape ondition for the coming season. The photo-illustrations are a ew reminders of tackle items that should be checked. While he check points shown apply to fly tackle, the same consideraions should be given spinning and bait casting gear.

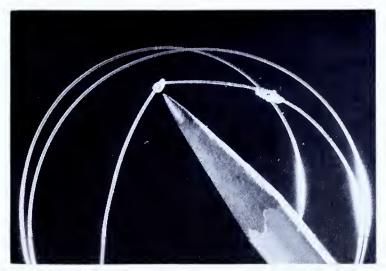
One important suggestion not shown: check boots and vaders for leaks. Opening day water is ice-cold, a fact to which I can uncomfortably attest.

With reasonable care, the angler's tackle will serve well or many seasons. The little repairs that are occasionally needed not only put your equipment in good working order but furnish in excuse to get out your pet outfit and reminisce over past conjuests.—And that's not a bad deal on a long winter evening.

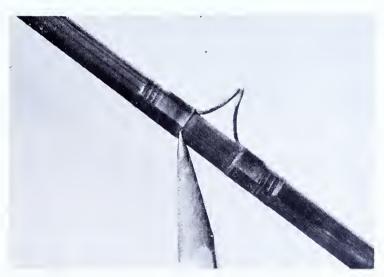


DRY FLIES that have done their job well are bound to be somewhat matted from fish slime. Steaming will usually restore flies to good condition. Crowding too many dry flies in a single compartment will cause hackles and tails to "set" out of shape.

MODERN FLOATING fly lines are virtually trouble-free, but once the finish begins to crack it's best to start looking for a new line. An isolated crack or two can sometimes be filled in with varnish, but when line is cracked in regular intervals (as above) it becomes an abomination to use and should be discarded.



CHECK LEADERS for wind knots. Generally these can be undone with the point of a needle. A wind knot is a simple overhand knot but it can reduce the strength of a tippet by one-half.



CHECK FOR FRAYED rod windings with a magnifying glass. Varnish on bamboo rods should be carefully examined and if badly cracked, rod should be refinished. Small scuffmarks on varnish can be remedied by lightly buffing area with steel wool and applying a little varnish with fingertip.



Youth Outdoors



SPIDER NETS SERPENT

By DON SHINER

The tensile strength of spider webs is well known by those who use these tiny filaments in the manufacture of scopes and scientific instruments. Yet, it came as a surprise to learn that spider strands are capable and strong enough to "hang" a snake.

Such was the fact conveyed by Scott Johnson, of Berwick, when he displayed the unusual photograph of a snake caught in a spider web. The location of the strange occurrence was a rock ledge in the gorge through which flows that magnificent trout stream, the Big Wapwallopen. While fishing in a frothing pool beneath one of the giant waterfalls, he glanced at the nearby cliff and was startled by the sight that greeted him. A watersnake was suspended in midair. Its tail was entangled in the filaments of a spider web. It was completely exhausted by the fruitless struggle to gain freedom.

Johnson critically focused the miniature camera that was slung about his neck, and complimented himself for having included his camera on this trip astream. The photograph reproduced here is the one Johnson snapped that day. An arrow superimposed on the picture calls attention to the thin strands of spider webbing that "hung" the snake securely.

Abraham Lincoln, born 161 years ago, stands taller with each passing year. In his Gettysburg Address he said that his words would not long be remembered. They can never be forgotten. Their truth, their wisdom, shine more brightly as the decades roll by. His admonishment, "government of the people, for the people and by the people," is a thing that Americans should remember very clearly in this troubled era.

The Feminine View

THE BATTLE OF THE X'S

By MARION LIVELY

Math was never my strong point in school, mainly, I think because I was usually asked such questions as "How mucl roofing would be required for a building of so many square fee when the roof pitch is so many degrees?" Since I could never really foresee the time when I would need to know this, I had a great deal of trouble working up any enthusiasm for figuring it out. But I don't want you to think that I'm a complete idio about figures, in spite of what some of the men of my acquaint ance might say; I can usually balance the checkbook withou too much difficulty and sometimes I get carried away and fine myself actually enjoying making out income tax returns—unti the horrible realization that those figures I end up with actually have to be paid! When my mother, sister, and I shop for each other we get involved in extremely complicated financial deal which we carry in our heads for months until we are practically even again and nineteen cents will clear the slate so we can start all over again. These financial maneuverings leave our more mathematically-oriented husbands not only lost but awe stricken.

Now even I know that 2X leader material is heavier than 6X I've known this practically forever and I can even remember it But is that good enough for the fellows around here? No, X' are not accurate enough; they insist on measuring leaders with micrometers and calling them complicated things like .0041 or .0094. When talk turned to leaders and tippets we might as well have been speaking different languages. They rattled of figures while I murmured pitifully, "But what X is thatapproximately?" They spent several evenings with paper and pencil trying to teach me the fine points of the decimal system but by the time I went fishing again, I'd forgotten. They fixed me up with a leader dispenser and marked the sizes in decimals and the only way I could tell which X was which was to fee them and that didn't work too well when it was cold and my fingers were numb. So I gathered up all my little spools of leader material which were marked with X's and stacked then up in order of size, strung them on an old piece of yarn, knotted the yarn and stuck the whole works in my jacket pocket. The fellows thought it was a horrible-looking mess but it worked very well. I had 2X, 3X, 4X, 5X, 2X, and 7X. That second 2X spool really held 6X but I knew that because it was between 5X and 7X. I never let the men see that one because they ge rather unreasonably upset over things like that. I do dislike upsetting them so I kept trying to think of a way to remember their darned decimals. So one day I mentally added a dollar sign in front of all those numbers—and do you know, I've never had a bit of trouble with them since although I still carry my spools strung on yarn and privately translate figures into X's The men were very pleased with me and although they agree that I'm no mathematical genius, they concede that I do understand money—even down to mills.

I love old trees
That lift up their voices
High above the grasses.
They do not sing
At the light wind's bidding:
They chant alone to storms.

Flies and Fly Tying

By ALBERT G. SHIMMEL

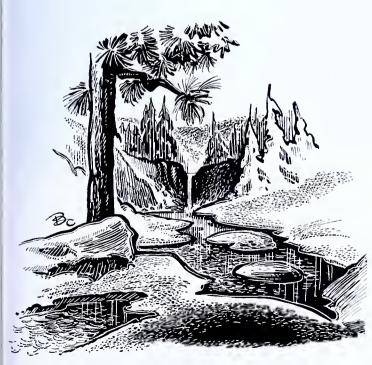
WHEN a man has spent better than four decades in pursuit f trout he looks upon certain patterns of flies with real affection. The better specimens of brown trout that have been able o survive, become sophisticated, and a challenge to the skill f the expert, are taken more often by some simple, drabolored fly. While the amateur tries his skill on the brighter, nore complicated patterns, the experienced angler prefers those f simple construction that can, if necessity arises, be improvised while angling.

The Blue Spider can be turned out by a skilled craftsman t the rate of at least a dozen per hour. It consists of a body pun from the underfur of rabbit or muskrat, a tail consisting f three or four strands of lemon wood duck flank. The hackle bronze blue dun that matches the body color as closely as ossible. We prefer to color our own hackles by taking a pale inger neck and using Blue Dun dye. The result is a mouse ray that reflects a bronze sheen when held toward the light. The Blue Spider is a versatile fly in stream practice. It is fair imitation of most of the grayish colored naturals that an be found from the beginning to the end of season. It can e used in all sizes from ten to twenty. The smaller sizes are o imitate the tiny slate colored midges that are abundant in imestone streams. Size fourteen and larger will fool trout vhen the early hatches of Quill Gordon and Hendrickson are on the water.

The fly can also be used effectively as a spent imitation or hatching nymph by wetting the lower hackles and stroking hem back along the body while the upper hackles are dressed with flotant. The fly then lies awash at the surface. In this position it is taken for a hatching nymph at the beginning of a hatch.

By omitting the dressing this fly can be fished as a wet or he hackles may be stroked back and secured with a single turn of tying silk to make a nymph imitation. The muskrat nymph hat has been so highly publicized in recent years is a child of he Blue spider. The same result may be obtained by clipping he hackle or burning it with a cigarette.

Here is a pattern that will serve the angler as a wet, a dry, a nymph and a spent wing. Try it!



MEMO TO ANGLERS

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OUTDOOR BOOKS

Silent Spring by Rachel Carson. 368 x pages. Illustrated with thumbnail sketches. Published by Houghton Mifflin Company, 2 Park Street, Boston, Mass.; 1962. Price \$5.

Champions of the anti-pesticides, anti-spraying school hail this new book as a long-needed national expose of the hazards and fallacies of chemical biocide programs. Manufacturers of the chemicals, dealers, and the various interests who, in one way or another, have financial stakes in the use of chemical poisons, hastened their side of the story into print. The charges and counter-charges have been many, sometimes heated, and always righteous. The virtue or the irascibility of arguments both for and against the whole spectrum of pesticides is judged mostly by an individual's position. There is little middle ground in the great pesticides debate; the superior forces lie with those who are patently for pesticides and those who patently oppose their use.

The person who wishes to familiarize himself with the reasons for the pesticides problem should read this book. The application of pesticides in various insect control and agricultural programs has been accompanied by the death and debilitation of livestock, pets, birds, fish, and other animals. Those things did happen; they were reported by respected and authoritative observers. So pesticides can be a threat to society, and how large a threat they pose to man, his possessions, and surroundings is actually the subject of the debate between those who would and those who would not use pesticides.

Silent Spring really does not resolve anything; it apparently is not intended to. Its principal purpose appears to be to inform, to alert, to arouse. Its practical result, it is hoped, would be to help the interested public conclude that far more study and investigation must be done before either side can remotely claim a victory. Taking the long-range view, these problems will be with mankind for years to come. Caution in the use of pesticides is the best policy in the absence of knowledge.

We stand on the new frontier where science and its machines threaten man. Our industrial plants and our modern conveniences have ruined many of our rivers and lakes. The uproar of motors penetrates deeper and deeper into the remaining wilderness areas. Man has a constantly diminishing chance to find any retreat. Yet with the expanding population we need expanding wilderness areas where youngsters and old folks alike can escape the dreariness of life for an hour, a day, or a month and once more become in tune with the universe.



FORTY INCHES of fightin' musky, 191/2 pounds, taken by Nelson Shultz of Baden, Pa., at Tionesta Dam, Forest County, on September 16, 1962.



FORTY-ONE INCHES, 19 pounds of northern pike caught by Mahlon Woley (center), Somerset, R. D. 1, Pa., last August. At left is John Buliat and right, Carl Wooley, both of Somerset, helping to hold the giant.

Photo by Somerset Daily American staff.

Catches . . .



THIRTY-FOUR INCHES, 14 pounds of catfish, caught by Samuel Gerber of Elizabethtown, Pa., from the Susquehanna River near Falmouth. The fish was taken on a live minnow and put up a good battle.



FIRST FISHIN' TRIP for seven-yearold William F. Meller of Pittsburgh, Pa., netted him this nice string of yellow perch from a party boat in Lake Erie recently. William declared . . . "I want to go again."

Sub-Zero Weather Quiz By CARSTEN AHRENS If you're going to be a "Compleat Angler," you'll have

to know the terminology of your sport. Try this:

All right: Splendid 7, 8, or 9 right: So-So 6 or less right: Sorry



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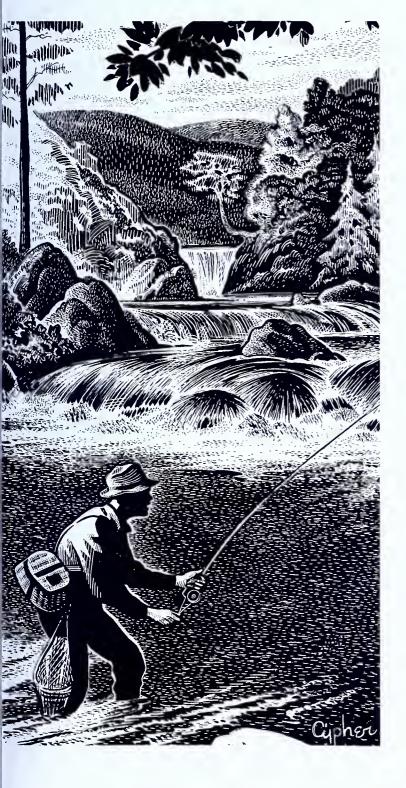
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MATCH:
1. Line A. An old tradition in Virginia
2. Reel B. One of the commercial forms in
which tobacco is sold or an
old horse and contrary to
fact, it never holds fire!
3. Sinker C. Temptation
4. Rod D. Skillful use of words
5. Troll E. A monster out of a fairy tale
6. Bait F. Washed down with breakfast
coffee at the "Greasy Spoon"
when the wife's visiting her folks.
7. Fly G. A baseball batted high, wide,
and handsome.
= 8. Plug H. A graceful exercise carefully
practiced by most all football
players.
9. Tackle I. Measure of length
10. Spinning J. A homey but noble skill of pio-
neer women.

ANSWERS:

1:01	H: 6	8:B	D:7	$\supset:9$
मः ऽ	1:4	3:E	A:5	u: r

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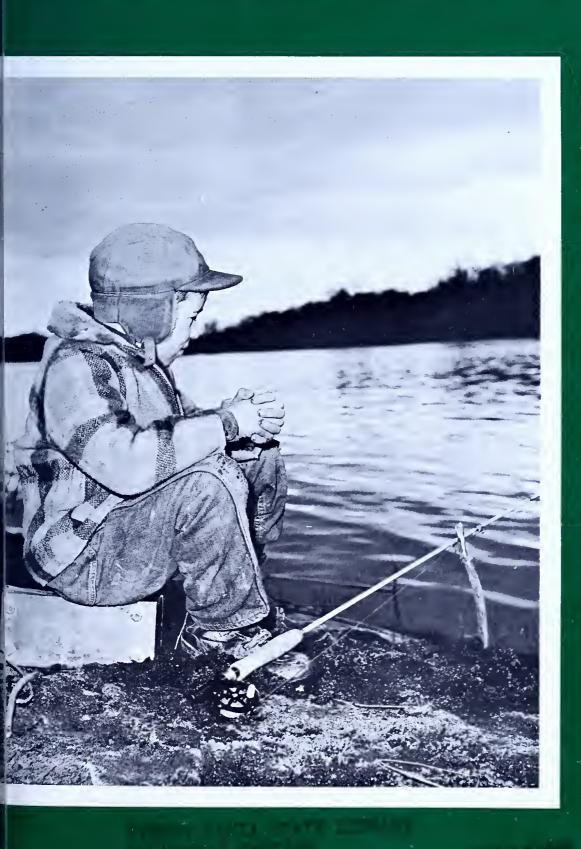
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MARCH, 1963



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GEORGE W. FORREST, Editor

JOHNNY NICKLAS, Photographer

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Inside Cover-Nice Catch of March Suckers

Back Cover—A Wonderful Sign of Spring Photos by Johnny Nicklas

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Better Fishing in Pennsylvania

for

Less Than a Penny a Day

By ALBERT M. DAY

Executive Director
Pennsylvania Fish Commission

THE Pennsylvania Fish Commission on January 21, in an effort to improve its financial condition, voted to request the Legislature to approve a \$2 increase in all fishing licenses. In other actions, the group moved to request General Fund appropriations to provide the Commission's share of a Federal Accelerated Public Works Program and to finance specified capital improvement projects. In addition, the Commission also voted to request the Administration for legislation which would make the necessary changes in the boating law so that it will conform to the requirements of the Federal Bonner Act.

If the fishing license increase is granted it is expected that \$650,000, or two-thirds of the anticipated million dollar increase, will be needed to place the organization back on the same footing it was eighteen months ago. The other one-third, or \$350,000, would be used to expand services for those who fish in Commonwealth waters.

If a General Fund appropriation of \$300,000 is authorized to match a similar amount available to the state through the Federal Accelerated Public Works Program, it will be possible to immediately undertake a sizable stream improvement operation and develop two large lakes and an important boating access area on Lake Erie benefiting fishermen and reducing unemployment in critical areas.

If the request for a General Fund appropriation of \$1,136,000 for capital improvements only is approved a new hatchery will be constructed to replace the fish

production lost at the Spring Creek facilities in Centre County. Production at these installations has been seriously curtailed because of pollution from State College Badly needed rehabilitation of the hatchery system, development of sixteen additional access sites; construction of a fishing lake, and payment of General State Authority obligations could also be accomplished.

If the proposed amendments to the boating law are approved by the Legislature the increase in revenues would assure better services for boaters of the Commonwealth. An increased boating safety program, including accelerated safety patrol of all boating waters and buoying and marking of dangerous channels would be instituted. The vacant assistant director for boating position would be filled.

There is a growing interest in all forms of outdoor recreation in Pennsylvania. We cannot afford to let the important elements of fishing and boating deteriorate However, continuing all of the functions of the Fish Commission on a fixed income in the face of increased costs of services and commodities is no more possible than operating a home when income has failed to keep pace with cost of living increases.

The sale of Pennsylvania fishing licenses reached its peak in 1953 when more than 750,000 licenses were sold. This number decreased gradually until it seems to have leveled off at about 600,000.

During this same period operating expenses—salaries wages, equipment, supplies, fish food and even postage—have continued to increase.

Perhaps it is of little comfort to compare our situation in Pennsylvania with neighboring states, but I should point out that the trend here is not peculiar. Nearly all the eastern, and some midwestern, states have shown similar declines in license sales. New York, West Virginia, Maryland, Ohio and Michigan, and others are undergoing the same fiscal crisis that we are here in Pennsylvania.

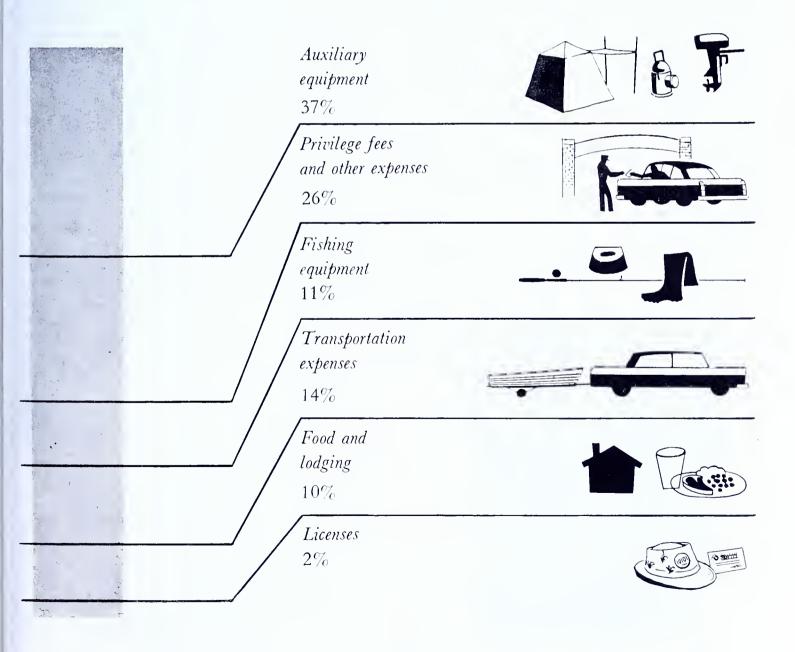
A recent national survey conducted by the U. S. Fish and Wildlife Service points out that only two cents of the fishermen's dollar goes toward his license fees, yet this is the only means of supporting, managing and reating better fishing. The other ninety-eight cents goes for incidentals such as boats, gas, oil, food, clothing, tackle, etc.

When it became evident in August, 1961, that expenditures were exceeding income, the Fish Commission lid the only wise thing that a responsible agency could lo. Expenditures were cut to a point somewhere close o revenues. The result was a substantial saving for he balance of the 1961-62 year and a considerable reluction in operating costs in all major lines of activity or the fiscal year 1962-63.

This was difficult, but it was essential. In engineering, we abolished our two stream improvement crews—very reluctantly, I can assure you. In the hatchery division, Upper Spring Creek in Centre County was partly closed; operations were reduced in all others by a sharp cut in manpower, while the muskellunge program in the Northwest was curtailed by the use of less expensive pond culture to replace some of the tank rearing that had been most successful. New equipment is not being bought. The hatcheries, one of which dates back to 1875, have had no major improvements in twenty years. They continue to deteriorate.

Because of the continued pinch in finances, we found it necessary late last fall to liberate some 110,000 two-year-old trout into lakes throughout the Commonwealth because we couldn't afford the \$50,000 or more that it would cost us to carry these fish through the winter for planting this spring.

We stopped the long established and exceedingly popular operations at Fishermen's Paradise, distributed some 12,000 of the large fish held there around the state and made the Spring Creek project a "fish for fun" stream.





Our six regional offices were discontinued and warden supervisors now do their work from their own homes. Our warden force has been reduced by six men due to death and retirement. These vacancies are not being filled, but the other wardens are exerting themselves to take up the slack. Biologists were cut from fourteen to nine.

In order to put the PENNSYLVANIA ANGLER on a self-sustaining basis, the subscription price was increased from \$1 to \$2 a year.

If revenues are not increased, further reductions will have to be made. These cutbacks would place a moratorium on all new land purchases for fishing and boating lakes. Further purchase of access sites would have to be halted. Lack of sufficient funds to purchase these important areas would occur at a time when land prices are increasing so rapidly that in the near future it is reasonable to expect the cost of such acquisition will have soared far beyond the reach of Fish Commission funds. Urban development and other demands



for land also are rapidly absorbing many areas which would be suitable for development for fishing and boating purposes. In many areas, the point of no return is already here. In others, acquisition must be accomplished soon or never.

Unless additional revenues are made available to the Fish Commission, it will be necessary to drop or defer indefinitely planned development of lakes and access sites already acquired, quite possibly at the risk or losing Federal Dingell-Johnson funds. These funds, derived from the Federal excise tax on fishing tackle and equipment, are used to reimburse state agencies at the rate of 75 per cent of the cost of approved projects. Unless the Fish Commission has sufficient funds to initially finance the projects, the Federal money is lost

The Commission's policy has been to keep maintenance of our properties at a high standard. Commission field personnel have done a remarkable job of maintaining existing areas. This service to the fishing and boating public, however, cannot long be continued with equipment that is old and unreliable. Rental of bulldozers cost \$14 per hour, whereas Commission-owned equipment can be operated at less than \$8 and hour. Unless our old machines can be replaced maintenance work will necessarily be limited, as the Commission cannot afford the expensive rental of privately-owned equipment.

As I have already pointed out, our hatcheries have had no major improvements in twenty years. They continue to deteriorate. Many of our tank trucks used to transport the fish to the streams have reached the point where they are either impractical or impossible to repair. Replacement of nets and other equipment needed for an adequate warm-water fish management program is not possible. Unless additional funds are made available this situation cannot improve—it car only get worse. If further drastic cutbacks must be made they will have to be made in the fish propagatior program. Hatcheries will have to be closed, the muskellunge program and other important warm-water fish projects will have to be curtailed. We cannot continue to produce an adequate supply of fish for Commonwealth anglers without the funds needed for new equipment and hatchery improvements.

We have stripped our research program down to a skeleton now. Further reductions in this very important phase of our program are certain to occur if lack of funds prevents us from competing with the Federa Government and private industry for trained personnel

We already have been unable to fill vacancies of our law enforcement staff. Many of our wardens serve two or even three counties. It already is physically impossible for these men to attend all important meetings because of the large territory which they must cover. The wardens do far more than merely apprehence fishermen and boaters for law violations. An important part of the warden's job is to investigate and report on new mining applications and to search out the sources of fish killing pollutions. They serve the fishermen, boaters and other recreationists of the Common

wealth in many other ways. Presentation of slide lecures on Commission activities; assistance to groups in he planning and installation of stream improvement projects; providing instruction in fishing and conservaion matters to schools and youth groups, and answering a constant flow of inquiries concerning fishing and oating in their respective districts are all vital aspects of the wardens' service to the fishing and boating pubc. These services obviously cannot be continued as in the past in the face of personnel and budget cuts which the enforcement division has undergone.

In conservation education and public relations reuced funds will necessitate curtailed activities. The isplay of live fish at sportsmen's shows and other speial events and the publication of informative and eduational booklets and other materials will have to be rastically reduced.

The Fish Commission has practiced every economy vailable to it in an effort to stay within the limits of evenues available from present license fees and related purces. The fish management program of Pennsylania has suffered and is going backward instead of prward in vital fields of activity. It will continue to o so, it cannot help but do so, as long as the present elationship of revenue to cost is allowed to prevail.

This is the situation as it exists today. Common-realth sportsmen must decide if the Fish Commission to be given adequate funds to enable it to continue provide the services to which they are entitled.

The \$2 increase in fishing license fees, which would ost the fisherman less than a penny a day, would enble the Commission to restore and improve the fol-wing services which were earlier considered normal: Restore hatchery operations and increase production four valuable muskellunge and other warm-water

Replace and increase the number of stream improvetent crews which we were forced to discontinue.

Renew production of large holdover trout for planting in Pennsylvania streams.

Complete land purchases and finish construction on shing lakes not possible on present revenue.

Improve the maintenance of existing access areas and construct new ones which are needed to better acommodate the public.

Re-establish observations and studies for better tilization of the commercial and sport fisheries on ake Erie.

Fill existing warden vacancies, not only for enforcement of the fishing and boating laws, but also to do a etter job in contacting and servicing the fishermen, oaters and other recreationists of the Commonwealth.

Restore a normal complement of regional biologists order to meet the growing problems connected with xpanding water use programs.

The General Fund appropriation to take advantage the \$300,000 made available to the Pennsylvania ish Commission by the Federal Accelerated Public Vorks Program would make it possible for Pennsylania to undertake fishing restoration projects or re-

lated betterments which otherwise would have to be delayed indefinitely. On approved projects, the Federal Government will bear up to 50 per cent of the total cost. The remainder must come from state funds. The Federal allocation will go to other states or revert to the treasury and thus will not be available for expenditure after June 30, 1963, unless it is obligated through an approved project agreement before then.

The approved projects include stream bank stabilization and improvement, development of water access areas, boat ramps, construction of public fishing lakes and lake and stream renovation.

The Fish Commission is convinced that the time has come when all of those who share in the recreational enjoyment of the facilities which we provide should also share in the cost of maintaining our program. Yet only the buyers of fishing and boating licenses now pay the bill.

We recognize the fear in some quarters that use of General Fund monies might encourage interference on the part of the State Legislature. We are convinced, however, that so long as General Fund money is requested only for capital improvements, such fears are unwarranted.

General Fund money would supplement, not dominate, the program. License money, under control of the Commission and the budget secretary, would continue to finance day-by-day operations, leaving the construction of new projects to the General State Authority and the General Fund. Items listed in this request include: the 1963 payment to the General State Authority—\$60,000; payment for access site on Walnut Creek, Erie County—\$40,000; construction of fishing lake—\$206,000; development of sixteen access sites at \$5,000 each—\$80,000; rehabilitation of hatchery system—\$250,000, and construction of new hatchery to replace Upper Spring Creek—\$500,000.

The Fish Commission has practiced every economy available to it. However, we cannot hope to continue, much less expand, the services to which the fishermen and boaters of the Commonwealth have become accustomed. The time has come when the sportsmen of Pennsylvania must realize the importance of providing the Fish Commission with adequate funds to do the kind of job they demand and rightfully deserve.





COMMUNITIES have welcomed draglines and coal trucks, exulted in brief prosperity, and then numbly awaked in a lunar landscape of raw spoil mountains, dry springs and sterile vistas.

Preventing Land Cancer

By M. GRAHAM NETTING in Carnegie Magazine

Pennsylvania Game Commission Photos

PENNSYLVANIANS familiar with the varied terrain, extensive forests, and rich farmsteads of their state rightly consider it to be a fair and favored land. With cool valley or shady forest as objective, such natives may traverse ugliness with mental blinders in place and use full vision only when a state park or boating water is reached. Few ponder the image of Pennsylvania the tourist gains. Fresh from superb roadside parks or bill-board-free scenic highways elsewhere, our visitors often drive through strip-mine-ravished countryside or wind through rural blight in search of infrequent roadside rests or pleasant campsites.

In recent years strip mining, although by no means the only villain in landscape destruction, has generated almost as much heat as the coal it yields. Operators have been damned en masse—although only some are irresponsible—lawmakers have been sharply criticized for not enacting stronger controls, and enforcement

agencies have been upbraided for not doing as muc as, or more than, the statutes require. As a conservationist I am wholly in favor of adequate controls an strict enforcement to curb the irresponsible. My conscience impels me, however, to place a goodly measur of blame for the eyesores of our countryside upon group that has rarely been castigated—the landowner who have leased properties for stripping. Operator lusting for a quick profit regardless of surface desecration have found landowners equally money-craving an more intent upon maximum coal royalties than upo restoration. The landowner has always had the right to stipulate what recontouring and replanting he desired, and excellent restoration has been achieved wher the owner loved the land more than the highest cas return.

Our strip-mining ills are the tragic result of humangreed, a shameful and thoughtless preoccupation with

present profits, a heedlessness of the necessity for a stable economy and a land legacy for the future. Whole communities have welcomed draglines and coal trucks, exulted in brief prosperity, and then numbly awakened n a lunar landscape of raw spoil mountains, dry springs, and sterile vistas.

All of us, regardless of deeds in bank vaults, are but sojourners on the earth's surface. Almost every acre, ce caps and deserts usually excepted has nourished previous sojourners, and its life-providing potentialities are too precious to be virtually destroyed by any rapacious generation. No one, during his brief occupancy, has the moral right to ruin land, pollute a stream, or lestroy a forest, and leave the area less habitable than when his stewardship began. Pioneer ethics—wear out one farm and one wife and move westward to two more—are untenable when there is no frontier but space. Exploding population requires wiser land use, greater concern for water, and clear recognition that the conservation of natural resources is essential to human survival.

Although I defer to no one in my abhorrence of stripnining abuses, fairness compels me to risk vilification by asserting that stripping is a good method of obtaining a mineral fuel essential in our industrial civilization. It recovers the maximum percentage of the total deposit, t leaves no vacuities underground to plague future users of the surface, it leaves no mountains of culm that cannot be vegetated in decades, and it is far safer and nealthier for the employes than deep mining.

Its principal disadvantages are three: it permanently alters surface configuration—but not always for the vorst; it destroys existing surface vegetation—a tragedy in areas of fine forest; and it alters the drainage pattern; but it need not cause water pollution nor water shortage. If properly done, coal stripping, in bituminous regions at least, can improve the water supply by creating lakes of pure water where none existed before and can rapidly form a new landscape of gentle contours lothed with grass and trees and dotted with water-noles for wildlife.

In western Pennsylvania, fine but isolated examples o validate my strong statement can be found in many counties. I choose for illustration of what can—and nust—be done the pioneering demonstration of restoration and the one with which I am most familiar. Florence Mine of the Harmon Creek Coal Corporation, at Burgettstown, Washington County. The Corporation began mining in the area in 1928, but large-scale surace mining was not started until 1937. At this time the ndustry contended that restoration could not be done conomically.

Fortunately James F. Hillman, president of Harmon Creek, was a staunch conservationist, imbued with a eal for wise use of natural resources. He recognized moral obligation for total restoration and made this n operating policy three years before the first statute equiring only partial reclamation was passed in Harisburg in 1945. Mr. Hillman's aversion to gaunt high valls is as strong as that of a mother with venture-

some youngsters, and he proceeded to prove that complete restoration, without man-made cliffs, could be done within the bounds of constructive capital investment

Florence Mine has been kept a profitmaking operation in spite of the vicissitudes of the coal industry. Furthermore, the employes have been paid union rates, unusual in many stripping operations and a source of antipathy to this method of mining. Of 5,066 acres presently owned by the company, 2,300 acres have been mined, and 2,240 acres reclaimed. More than 2,000 acres have been clothed in grasses and legumes, and over two million trees and shrubs have been planted.

In a number of important aspects the procedures at Burgettstown differ from customary operations. First, the area to be mined two years later is measured and the planting needs calculated so that nursery production can be started. When mining begins, the topsoil that has taken thousands of years to develop is scraped off and stockpiled. Recontouring begins immediately after removal of the coal, with the grading bulldozer never more than five or six acres behind the shovel. After regrading—not actually leveling, for rounded knolls and enclosed swales hold more water—the topsoil is spread over the surface like icing on a cake. And fine icing it is, even though it may have come from marginal farms, for it is rich in soil organisms and weed seeds that help to provide rapid vegetative cover. Lime, and occasionally fertilizer, are applied as needed, and the area is usually planted with a "cover crop mixture" of nine clovers, lespedezas, and grasses, with a seasoning of black locust and blackberry seeds added. The aim, of course, is to reclothe the surface as rapidly as possible so that the spoil banks will not bleed in the rains and bake in the sun.

In a richly varied field experience I have observed devastation by natural forces as well as destructiveness by man. Nature's recuperative stages are time-tested, and by copying them we can achieve faster and more



STRIP MINING operations are often the tragic results of human greed and thoughtless preoccupation with present profits.



SAND CHERRY PLANTS, three years old, on mine spoil, already producing a crop of fruit.

desirable revegetation. The common practice of machineplanting of evergreen trees on raw spoil is unnatural and shortsighted. In our area, natural reseeding begins with a cover crop of weeds, briers, and grasses, or deciduous trees such as aspen, sumac, thorn, sassafras, and locust, or a mixture of both.

Win Allison, the first reforester at Harmon Creek, and Wade Van Kirk, his successor, have followed nature rather than attempted to impose their will upon her, and the results of this cooperation are impressive. Driving along company roads—no coal is hauled to the tipple over public highways—one views rolling fields of grass, alfalfa, and clovers, some only two seasons old and ready for interplanting of pines and deciduous trees that will have a higher survival rate and will make faster growth because of the sod mat and the nitrogen fixed by the legumes. On older areas pearly gray Russian olives display good crops of fruit, relished by game, five years after being set out as one-year nursery seedlings; high hedges of multiflora rose along one side of the roads provide perfect travel lanes for wildlife and superb nesting cover for birds; even slow-grading honey locusts boast nutritious seed pods seven years after planting. On the reclaimed lands at Florence Mine, red oak and red pine, white oak and white pine, buckeye and persimmon, mulberry and hickory, white ash and white dogwood, and other trees have already become a flourishing mixed forest, ecologically more suited to our climate and immeasurably more productive of game

food than the solid phalanxes of pine or spruce that characterize many coal-stripped areas.

And what has this carefully planned technique of reclamation accomplished? At Harmon Creek visiting groups-and many conservationists, foresters, and others come to observe the results—may see a 9-acre lake teeming with black bass, bluegills, channel catfish, and some rainbow trout, fields of grass waist-high two years after grading, flourishing forests of varying age and many species, pools of pure water glinting at the foot of slopes, and small game in abundance. The reclaimed areas are growing more trees, better grasses, and more game, and are aesthetically more satisfying than the marginal farmlands before mining. A fair profit has been made, steady employment provided, recreational facilities constantly enjoyed by workers and their families, and land values and attractiveness improved.

And what has it cost to conclude profitable mining with the final excellence of a pleasant and productive landscape, instead of the desolation of gaunt high walls and serrated spoil banks? Accurate cost figures have been kept, and such total reclamation has amounted to 8.6 cents per ton of coal mined, ranging from \$360 to \$450 per acre depending upon the thickness of the seam and depth of overburden. Mr. Hillman readily grants that his planting costs were reduced by the establishment of the nursery, although some stock is still purchased. Obviously if an operator owns his land, he can

hat will result. Similarly, a lessee should welcome a royalty reduction of a few cents per ton to have as good, or better, property after mining—a case of eating your cake and having it too. And communities faced with the prospect of ruined environs, surface erosion, and water pollution should insist that both operators and landowners recognize their obligation to keep every Pennsylvania acre green. Naked earth should be a noral affront to everyone imbued with a commanding ense of what's right for the land.

Mr. Hillman's dedication to land reclamation is natched by his interest in human conservation. He eels strongly that corporations should be interested in ecreational facilities for their employes, either directly r by supporting organizations such as the Western Pennsylvania Conservancy. At Harmon Creek, public unting is encouraged, and the employes have their own fishing committee with independent control of fishnanagement operations. The company cooperates in hese recreational developments by emphasizing gameood plantings in reclamation and by landscaping lake nd picnic areas, but does not exercise control. Mr. Hillman believes that through pioneering in outdoor estoration and through establishment of employenanaged recreation facilities a high degree of mutual inderstanding has been attained.

Many conservationists contend that a drastic increase n the operator's bond will solve most of the evils of urface mining, but this is an oversimplification of a omplex problem. Even a \$500-per-acre bond will avail ittle if it is refunded after planting, whether the plants row or not.

We must keep in mind that all legislation and enorcement should be aimed at three essentials: 1) prevention of water pollution and soil erosion; 2) maxmum restoration of the surface; and 3) successful evegetation.

An inflexible rule against issuance of new permits o operators who have failed to comply with existing equirements, who have been cited for repeated violations, or who have had "accidental" discharges of acid vater, would have an immediate salutary effect. Stockilling of topsoil for final top-dressing should become tandard procedure. Much more emphasis should be placed upon planning future land use before mining regins; an area intended for cattle-raising will need lifferent treatment from one for recreation use. Many nore lakes should be planned.

Planting programs should be varied in accord with ocal conditions and the landowners' preferences, and ertification of successful revegetation should be required before all bond moneys are refunded. Lest this eem a harsh requirement, I cite the commendable speed with which new highway cuts are reclothed by the nodern technique of blowing a mixture of fertilizer, arious seeds, and straw upon steep cuts lacking even he advantage of topsoil.

Many may moan that my recommendations are isionary or economically unattainable. I contend, how-



AN AGED PLANTING affords abundant food and cover for wildlife.

ever, that water is as precious as coal, topsoil too golden to bury, and a usable countryside a necessity for survival. Poor land means inexorable, poor people. Boom and bust, whether it be lumbering without reforesting, agriculture without soil conservation, or mining without reclamation, will never maintain economic stability. Devastated acres, however produced, testify to unthinking greed and disregard of future welfare. No state can afford to advertise to visitors that it is committing economic and social suicide, acre by ruined acre. "Keep Pennsylvania Green" signs are a mockery where towering spoil banks, horrendous chasms, and orange streams abound.

Surface mining—of coal, clay, limestone, and other minerals—is an extractive technique inescapably with us. Responsible landowners and conscientious operators, sportsmen and nature-lovers, lawmakers and public officials must join forces to leave our land as a goodly legacy for posterity. James F. Hillman and others have proved that strip mining can be profitable yet end in beauty and promise. Many richly deserved awards have been made to him for his pioneering in reclamation, but I know that Mr. Hillman will feel most deeply touched by the flattery of widespread imitation. The Frankensteinian draglines can write our epitaph acre by acre, or they can build our future by re-creating a landscape we may walk without shame.



SPEARFISHERMEN OF TIONESTA

By STEVE SZALEWICZ



SPEAR IS RECOVERED from carp that broke handle. Forest County District Game Protector Cecil Toombs frees the spear while George Lewis (right) and Ben Blum (left) give advice. Note Blum prefers a three-tined spear. The wounded carp was spotted struggling under the clear ice and was finished off when the men cut a hole over it.

The fishermen of Tionesta, Forest County, do not give up very easily. They fight winter when it starts to build ice over their favorite walleyed pike pools in the Allegheny River by breaking down skim-ice as quickly as it forms. Inevitably, just after deer season, winter wins. Ice covers several slow channels formed by a series of 13 small islands that string out downriver from Tionesta.

It's then that the spearmen examine the ice for soundness. Four inches of clear ice means that spears are taken out of garages, crosscuts and axes begin to cut large holes. And then the carp and sucker-spearing begins with no letup as long as the ice holds out.

Below Tionesta the river offers several acres of ice suitable for spearing. A typical backwater channel which in the first week of January yielded 88 carp averaging about 15 pounds each, is about 100 yards long and sixty yards wide. The river here is from two to eight feet deep.

On this ice sheet are cut a dozen holes, each about ten yards apart widthwise and 30 yards apart lengthwise. Five spearfishermen make up an ideal party. Two men go upstream and with thick clubs begin stomping the ice and "driving." Three others position themselves over the first holes, spears in the water about halfway from the river bottom. The hand that drives the spear is held high on the handle for thrust. As the stomping begins, the carp, suckers, walleyes and muskies begin moving downstream. Evidently they don't like the stomping shocks. The spearfishermen know that only carp, suckers and gar may be gigged. Carp are most easily identified because of their hulk and bluish forms.

When a carp passes underneath, the spear is quickly thrust downward, with the head making the best target since some compensation is then given for the fish's movement. After a few thrusts the spearfisherman begins to hit carp whether they pass at eight-foot or three-foot depths. If the carp is hit the barbed points are driven through the fish until it is pinned on the gravelly bottom. The tremors of a big carp's struggle are easily felt even in the stout-handled spearing tools. Only after the spearfisherman feels that the carp or sucker is properly impaled is an attempt made to bring the lunker from under the ice. Heavy, tail-swishing carp, some up to 49 pounds, at times easily snap the handles.

Drivers stomp ice in zigzag patterns until the course is run, with watchers moving to downstream holes as drivers approach. Sometimes this allows watchers three or four thrusts at downstream-moving carp. The drive is then reversed, and the carp are driven upstream. This harassment continues until the carp become too wary. And they are a very intelligent fish. Somehow they seem to sense where the ice is thinnest and where the spearfishermen will not pursue them. Or they move out into open water.

If carp spook too much, they are rested for a few hours . . . or the spearfishermen return the following morning. The carp work back under the ice over night. In the first week of January, 1963, in three days running Tionestans working one channel speared 88 carp. Tiring of carp they turned to suckers. Spearing from "safe" shore ice, they intercepted suckers coming upstream to spawn and took 38 suckers in one afternoon, some redtails weighing up to nine pounds each.

Many of the carp and suckers were smoked. Carp when cleaned and scaled are soaked in a brine (5 pounds salt to 100 pounds of fish) overnight and then smoked up to 20 hours with hardwood and corncobs. If flesh is still stringy a 45-minute baking in a 275-degree over produces a delicacy. Suckers, also scaled and scrubbed clean, are turned into prized snacks after they are soaked in brine and smoked for about three hours.



TIONESTANS have long had reputations as skilled spear handlers. These modern-day spear-fishermen of the space age take no back seat to the old-timers who talk of gigging buffalo suckers under the torchlights of the late 1800's. Surveying the results of two days' spear-fishing in the Allegheny River, a mile below Tionesta (Forest County), last January are, from left, Bill Anderson, George Lewis, Ben Blum, Ken Anderson, Ed Mooney and Phil Rigby. The 88 carp shown here weighed over 1,000 pounds. Many of the fish were smoked.



HEAD SHOT . . . Bill Anderson 25-pound carp. Note size of hole the ice.



CARP ARE NOT WASTED . . . spearfishermen Ed Mooney, Ken Anderson and Bill Anderson drag their share of carp up the snowy river bank to the smokehouses.



VETERAN George Lewis hoists a big carp which passed under him as Phil Rigby, in background, stomped the ice as a driver.

The End of Winter



Winter trout stream locked in snow and ice.

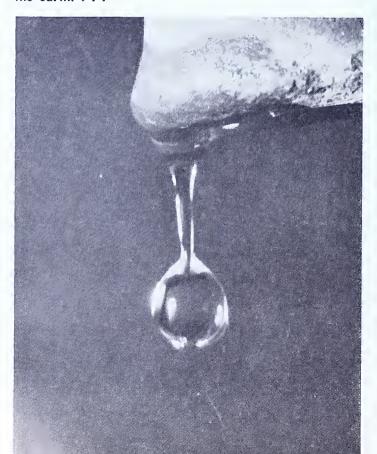


The climbing sun or droplet of water an

By DON SHINER

The Birth of Spring

Like a rotund puppet on a string it stretches toward the earth. . . .



Moment of truth comes fast droplet breaks from its elactoristics ground. . . .





releases first

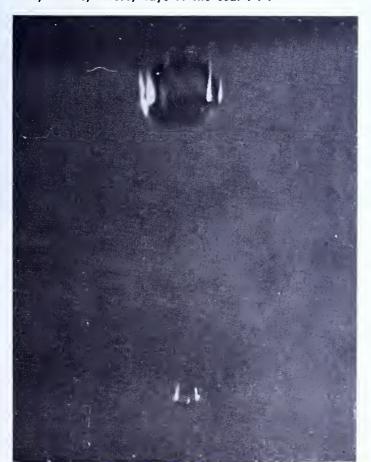


Droplet becomes heavier, elongates as more ice melts....



Larger and longer and heavier it grows. . . .

blink, o the More droplets form and become a chorus of drips and drops in regular tempos, swelling rivulets, rills, brooks, runs, creeks, rivers, bays to the sea. . . .



Then spring arrives, all soft and green and beautiful. From winter, in first photograph, to spring in this one is the difference of one droplet.

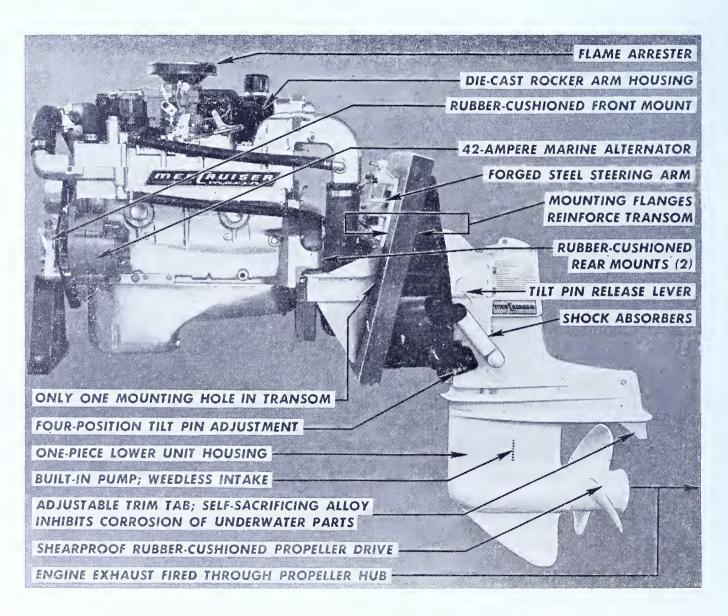


Boating



Inside the New Stern Drive

By WAYNE HEYMAN



NEWEST CONCEPT in marine propulsion is the all new stern drive engine that combines an inboard engine with a steerable, tiltable outboard-like unit. Featured here is the 110-h.p. model developed by the Kiekhaefer Corporation. With the new stern drive there is no propeller shear pin to fail. The propeller is splined to the shaft and the Flo-Torq propeller safety clutch absorbs impact in inertial loads. Positive alignment of engine and stern drive unit is achieved with precision-machined rear engine mounts cast integrally with the inner transom plate. Leveling adjustments on the front engine mounts permit final alignment in the vertical plane. This permits fast, accurate alignment that is completely independent of the hull.

This year's boating season will mark the beginning of a new type engine for boat owners. It's the all new MerCruiser III with a stern drive unit that packs up to 450 horsepower at 5,000 r.p.m.'s. Stern drive is the brain child of the Kiekhaefer Corporation; a company that has contributed more than its share of new inventions that have proved a boon to the boating field.

Veteran water sportsmen will immediately discover that the new stern drive offers a host of improved features. First and foremost, it allows large, seaworthy inboards to at last dispense with conventional marine transmissions, V-drive gear boxes, propeller shaft logs and struts, rudders, mufflers and exhaust pipes and cooling water intakes, with screens, built into the hull. Since each of these now obsolete necessities require one or more holes in the hull, the boat owner can bask in the relaxation of eliminating a good dozen or so troublesome leakage areas. What is even more apparent to the casual glance is, the MerCruiser III steers and tilts like an outboard motor. This gives large inboards a degree of safety, maneuverability, motion control and versatility never before attainable with a fixed-shaft, direct-drive propulsion.

Another noticeable feature is the dual hydraulic shock absorbers that are purposely designed to do two important jobs. In addition to protecting the stern drive unit, transom and engine from the strains and stresses of impact with submerged or floating obstacles, they also serve as hydraulic jacks for a dashboard-controlled power-tilt system.

Since there is no fixed propeller shaft, strut, rudder or rigidly-mounted propeller to damage, beaching and launching the MerCruiser III becomes a safe and easy chore. In fact, the power-tilt feature is the first practical beaching gear that can be used for shallow water maneuvering.

One of the Kiekhaefer engineers responsible for bringing the stern drive past the planning stage proudly revealed what is perhaps the best news yet. Under the corporation's trade mark, the all-exclusive Jet-Prop exhaust system has completely eliminated that noisy muffler-type exhaust setup that is always associated with an inboard. Now instead of the engine exhaust passing out through the transom by pipes, Jet-Prop allows fumes to be fired through the propeller hub where sound and exhaust are dissipated deep under water. The resulting quietness is a revelation to boat owners, as well as guest and lake front dwellers, who have been forced to accustom themselves to the rumble and sputter of conventional inboard exhaust systems.

The large-diameter, slow-turning propellers provide the necessary blade area to give the MerCruiser III tremendous thrust capacity without sacrificing high speed efficiency. With its standard 1.5 to 1 reduction ratio, the MerCruiser III can swing propellers as large as 19 inches in diameter. A super-thrust lower unit, available as optional equipment, handles propellers from 19 to 22 inches in diameter and has the lowest gear ratio in the industry with a 1.7 to 1 reduction. The vertical drive shaft is of ample length so the pro-

Docking Skill Requires Experience or Practice

Watching a skilled helmsman maneuver his boat alongside a pier or into a narrow slip is an interesting experience. Although it looks simple or even automatic, you can be sure it takes some practice. If jockeying your outboard boat in close quarters is a problem, here are a few tips from the Evinrude Boating Foundation that should make it easier.

When you want to come alongside a pier, it's best to make your approach at about a 45-degree angle. Keep a light hand on the throttle and when within 10 yards of the pier, cut your speed to an idle. Coast the last several feet in neutral and just before the bow has a chance to nudge the pier, cramp the steering wheel toward the pier and shift into reverse. This will swing the stern around and bring the boat parallel with the pier.

If a stiff breeze is blowing or a current is moving the water, try to make your approach into the wind or current, whichever is stronger. This will brake your forward motion and give you more control over the boat.

If you must approach with the wind or current, make allowances for the extra push it will give the boat. In some cases it may be necessary to keep the engine in reverse. In any case be ready to shift gears quickly to control the motion of the boat. Remember, your standard shift outboard will shift easiest at idling speed. With the newer automatic push-button type, the throttle can be set at higher speeds and the boat maneuvered by simply pushing the buttons.

A couple of fenders placed between the boat and the pier will keep the hull from being scratched. Have the fenders attached and ready to flip over the side of the boat as you approach.

When leaving a pier, it's important to remember that your boat does not steer like a car. The stern will respond first when the steering wheel is turned. This being the case, never attempt to turn out sharply when the boat is snug against a pier. This can cause the stern to either swing into or under the pier. It's best to shove the boat away and, when it is clear, shift into forward gear and proceed. If a wind or current is pushing against the boat, turn the wheel away from the pier, shift into reverse and back up until the boat is free.

When docking, waiting to get on a ramp, or operating a boat in any other tight situation, remember that a cool head and a light hand are most important. Try to anticipate the effect of the wind and current and be ready to act accordingly. Skillful helmsmanship, like anything else, can be learned by either practice or experience. Experience takes years, but practice can do it in a surprisingly short time.

peller can be operated at its required depth without the stern drive unit being submerged while the boat is at rest. This should be appreciated by many boat owners who find it to their advantage to have deep-set propellers on a deep-V hull.

SPORTSMEN'S CLUB BEGINS CAMPAIGN TO AID DELINQUENTS

Pittsburghers Plan Outdoors Program for Youths Sent to Development Center



By ROGER LATHAM, Outdoor Editor
The Pittsburgh Press

Those of us lucky enough to be born and brought up in the country can hardly realize that there are boys who never get to know the thrill of fishing, camping, hunting or just "being out in the woods." But right here in Pittsburgh and vicinity there are plenty of them.

Some dozens of such boys are today "doing time" at the Youth Development Center (formerly Thorn Hill) near Warrendale in Allegheny County. They have been sent there by Juvenile Court judges who found them guilty of some law violation. Practically each of them is a boy off the streets of Pittsburgh or surrounding cities and boroughs.

If a new project initiated by the Pittsburgh Sportsmen's Luncheon Club succeeds, these boys, and those to follow will learn about camping, cooking out and self-reliance in the wild; they'll become familiar with the trees, the birds and mammals and other living things it nature; and, in general, they'll find out there are a lot of ways of having fun without breaking laws.

The Spetsmen's Luncheon Club members are firm believers that the out-of-doors can keep boys out of trouble. They cite the case of the Juvenile Court judge in the State of Washington who examined the court records of 45,000 boys and girls who were brought before him. He found that not one of them had a wholesome outdoor hobby as his or her chief interest.

The program sponsored by the Pittsburgh club is somewhat of a pilot project. If successful, and there is good reason to believe it will be, the program will be extended to other institutions for delinquent boys and girls. And as this is done, it is hoped that more and more sportsmen's clubs and individual sportsmen will volunteer their time and talents.

Casting and Archery Classes First

Starting this week at the Youth Development Center, two weekly courses of instruction will get under way. The first will be casting classes given by the Pittsburgh Casting Club under the direction of Ted Specht. The second item will be indoor archery instruction with Carl Kestner of the North Side Sportsmen's Assn. and the Allegheny Branch YMCA in charge.

Other plans for the winter include fly tying classes conducted by the Pittsburgh Fly Tyers Club, talks on conservation and nature subjects, outdoor films and slides and demonstrations of outdoor activities and crafts.

Along with this over-all winter program, a Boy Scout troop will be formed. This troop will be sponsored by the Pittsburgh Sportsmen's Luncheon Club and will function under Ray Edwards, Scout commissioner from Wexford, and a committee composed of

club members, clergymen and Youth Development Center personnel.

Warm weather activities will be even more ambitious. It is hoped that the sportsmen will sponsor a fishing pond project. At present there is no pond or lake on the 1200-acre property but there are plenty of good places to construct one. With a pond, properly stocked, the boys could have fishing close at hand, plus ice fishing, canoeing, skating and other water sports.

In addition, plans are being laid for camping, both on and off the Center property, conservation trips so the boys can see the work of the Game and Fish Comnissions, the Department of Forests and Waters, Soil Conservation Service, Western Pennsylvania Conservancy and other conservation organizations.

The boys will participate in conservation projects. compete in casting and archery events and in general to the things that most boys delight in doing outdoors. We even expect to have them raise game birds.

Equipment, Clothing and Books Needed

To accomplish all of this over a period of time, the sponsors will need help. Although there are only about 100 boys at the Center now, soon there will be more han twice that many. We need fishing tackle, archery equipment, camping supplies, Boy Scout uniforms, and outdoor clothing for these boys.

In addition, we need good books and magazines, particularly with an outdoor theme for the Center's library.

And above all, we need people with time and talent to help convince these boys that there's more to life than city streets, corner gangs and outwitting the police. These boys, most of whom have never known love as children, need to be shown that men have an interest in them.

Lawrence Veney, the dedicated superintendent of the Center, has given his wholehearted support to the program. He will even permit sportsmen to take one, two or three boys for a day or half-day on weekends for ishing trips or other similar outdoor jaunts.

Sportsmen who might wish to contribute equipment to the project should mail the items to Lawrence Veney, Superintendent, Youth Development Center, Warrendale, Pa. Sportsmen's clubs could collect equipment from their members and transport the whole lot to Warrendale. Those who have large amounts of equipment and would wish to have the box picked up, could write to Roger Latham, Outdoor Editor, *Pittsburgh Press*, Pittsburgh 30.

Let's make this project a success and eventually exend the effort and good influence to the other corectional institutions in the Pittsburgh area.

Sportsmen have a great opportunity to do much good for boys who think no one cares. It should be a great satisfaction to watch a boy change from a city-treet rowdy to a good citizen and a true sportsman.

You take a piece of living clay And gently form it day by day; Moulding with your power and art A young boy's swift and yielding heart.

HOLD IT-DOC!



TROUT WATERS CLOSED

All fishing in trout waters of the Commonwealth will be prohibited from midnight, March 14, to 5:00 a.m. April 13.

The waters include sections of any stream or river or any pond or lake if such section of stream or river or such pond or lake has been stocked with trout by the Fish Commission within the preceding year.

Ponds and lakes in which fishing is prohibited by this law are posted by the Fish Commission.

A complete list of the waters and sections of waters in which fishing, including spearing, is not permitted during this closed season is included in the final pages of the 1963 Summary of Fish Laws.



National Wildlife Week, March 17-23, 1963

The PENNSYLVANIA ANGLER salutes a "week" which actually promotes the interests of the general public—National Wildlife Week, March 17-23, 1963.

Spotlighting important conservation problems each year, National Wildlife Week in the past has alerted us to the need for preservation of several valuable wild birds and animals, the need for conservation of wetlands for waterfowl, to the advisability of considering wildlife and recreation in public land management policies, and to the national disgrace of water pollution.

Theme of the 1963 observance is "Chemical Pesticides are POISON—Handle with Care," most timely considering the recent release of Rachel Carson's book, "Silent Spring," and the increasing variety of deadly chemical poisons for controlling insects, rodents and other pests on the shelves of our neighborhood stores.

It is altogether too easy to let the relatively uncontrolled distribution and use of these poisons go unchecked. Steps must be taken to protect the public—and the nation's heritage of abundant fish and wildlife—from quick or slow death at the hands of some users of chemicals who seem to have dismissed songbirds and fish as unnecessary and unworthy of consideration in massive spraying campaigns.

National Wildlife Week, scheduled for March 17-23 this year, is one of many worthwhile conservation education projects sponsored by the National Wildlife Federation, which has its headquarters in Washington, D. C.

Representing some two billion local affiliate members, individual contributors, and associate members, the Federation publishes NATIONAL WILDLIFE magazine, CONSERVATION NEWS, and CONSERVATION REPORT, as well as numerous leaflets on conservation education for teachers and school children, and program suggestions for local and state conservation organizations.

It provides leadership on national conservation issues, sponsoring a national conservation conference in Washington each December. It awards a number of valuable scholarships and fellowships to college conservation students each year and also assists state teacher-training programs, having spent almost a quarter of a million dollars on conservation training projects during the 26 years of its existence. National Wildlife Federation television public service announcement films and press releases for newspapers carry the conservation message to all citizens.

National Wildlife Week is conducted at the community level by local sportmen's and other conservation groups which are members of the state affiliate of the National Wildlife Federation and valuable assistance is provided by state game and fish conservation agencies. It was first proclaimed by President Franklin Delano Roosevelt in 1938 and has received the proclamation of each succeeding president.

THE UPPER ALLEGHENY

By PERRY WALPER

The following is condensed from the book, 100 PENNSYLVANIA TROUT STREAMS, compiled and edited by Jim Hayes, and published by H. C. Suehr Co., Steubenville Pike, Pittsburgh 5, Pa. (\$2.00).

From its source as a small meadow stream in the undulating hill country atop the Allegheny plateau in Potter County to its meeting with the Monongahela at Pittsburgh's historic point, the mightiest river in Pennsylvania is the fabled Allegheny.

Although this river boasts an enviable reputation as a producer of smallmouth bass, muskies, northern pike and walleyes, it has never to my knowldege been written up as trout water.

Yet in its own right and by virtue of its many magnificent tributaries the Allegheny is a trout river without equal in eastern United States.

In its upper reaches the Allegheny harbors trout from native fingerling brookies to brown trout up to at least seven pounds and rainbows to twice that poundage. The river itself ranges from a brook so small you can step across it to a brawling white-water terror that can crush, smash and drown an angler with absolute impunity.

The Allegheny rises as a meadow brook in the rolling hill country of Allegheny Township in Potter County. Flowing out of a broad valley, it crosses Route 49, winds down through a pasture, and parallels Route 49 all the way to Coudersport.

This upper stream from the source through the village of Seven Bridges and on downstream is predominantly brook trout water. Its only notable tributary before Mill Creek comes in at Coudersport is Woodcock Creek, a brook trout stream.

With the added volume of Woodcock and Mill Creeks, the Allegheny attains at Coudersport a normal flow width of 10 to 12 feet. It contains large brown trout both above, below, and within Coudersport itself.

Between Coudersport and Roulette the river parallels Route 6. This is all excellent holding water, producing many fine brook, brown and rainbow trout. The major tributaries are Fishing Creek and Dingman Run.

Along this same stretch you find two of my favorite fishing sections. The first is the stretch from the mouth of Lehman Run to Trout Brook. The other is the long riffle and pool below the mouth of Reed Run, three miles above Roulette. These are good early-season stretches with plenty of browns and rainbows to keep you busy.

Another outstanding stretch for early-season trouting is the entire run of river between Roulette and Burtville. Unfortunately, the trout fishing falls off with the beginning of warm weather about mid-June.

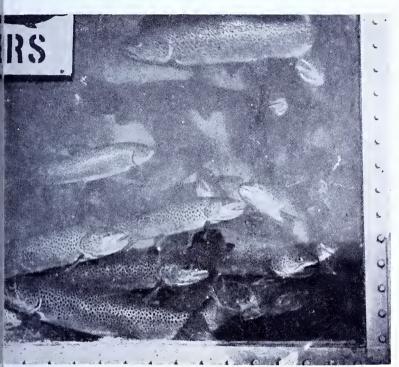
Whether you prefer fly-fishing, spin casting, or the use of bait, you will find this upper Allegheny an ideal piece of trout water. The favorite fly patterns are the White Wulff (No. 8); the Edson Dark and Light Tiger; the Gray Ghost streamers; and then the standard dry and wet fly patterns.

From Port Allegheny through its swing through lower New York State the river contains bass, muskie and northerns but very few trout. Upon entering Pennsylvania again above Corydon in Warren County, however, the Allegheny is a river reborn—swift, brawling, rock and gravel bottomed, lovely to behold.

From Corydon to Kinzua, the stretch to be impounded by the Kinzua Dam, the river contains smallmouth bass and trout, mostly rainbows. Some of these rainbows may run from 4 to 10 pounds, and many big ones are taken each year at The Point in Corydon.

Swing Into Spring

-Photos by Johnny Nicklas, Pennsylvania Fish Commission



HERE THEY ARE in the Commission's new glass tanker about to be stocked in one of Pennsylvania's trout streams open to public fishing.



YES . . . YOU CAN LOOK . . . all you please at these luscious scrappers.

YOU CAN EVEN SHOOT them . . . with a camera, of course . . .



AND MEASURE THEM . . . but on April 13 you've got to CATCH 'EM!



MARCH-1963

STREAM NOTES

District Warden Walter G. Lazusky (Lackawanna) declares Jay Sara is an expert ice angler. On Newton Lake he uses a jig rod of his own design and a perch eye, catches bass, pickerel and perch in abundance at the lake.

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Earl Eichelberger, Bethlehem, Pa., fishes both Pennsylvania and New Jersey streams and he has found a way of paying for his Jersey license. His favorite trout stream in that state flows through a certain northcentral New Jersey golf course and when the fish are off feed he uses his long-handled landing net to retrieve golf balls that have been sliced or hooked beyond the reach of unfortunate golfers from deep holes in the stream. Sales of retrieved golf balls are pretty good. Eichelberger has pet holes for trout and pet holes for golf balls but where they are nobody knows.—District Warden Miles D. Witt (Northampton and Bucks).

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District Warden Paul Antolosky (Centre) and Regional Warden Supervisor John Buck checked an angler on January 18 at the old Paradise, now a "Fish-for-Fun" project. The fisherman had just landed a 23½-inch brown trout, his third fish of the morning. Three other anglers were observed enjoying the "Fishing in January."

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During the period of ice fishing for trout I was surprised to see how many anglers took advantage of this type fishing. It was interesting to see the many improved devices. A good number of brown trout were taken on minnows, liver, worms and cheese. The first trout, a 10-inch brown, was caught by Paul Karhan, Germania, Pa., using liver. The largest trout was a 16½-inch brown, caught by 14-year-old Tom Zengerle, Galeton, Pa.—District Warden Kenneth Aley (Potter).

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Ice fishing fever is very catching in Somerset County waters with each winter bringing out more and more anglers fishing through the ice. The fish have been willing with a good number of northern pike, bass and bluegills furnishing the action. On a recent Saturday afternoon it rained steadily but there were anglers out on the ice from early morning on and they were catching fish.—District Warden Joseph Dick (Somerset)

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Minter Jones, Southwest Regional Warden Supervisor, reports the receipt of a \$100 donation from the Champion Pipe Products Co., at Salisbury, Pa. The company expressed its gratitude in this manner for the cooperation and work with District Warden Joseph S. Dick on projects in the area.

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It appears the muskellunge program of the Commission on the North Branch of the Susquehanna River is going to be a success. Fishermen of the area are enthused about hooking into one of the monsters. I have had many reports of undersize muskies being caught, one of legal size, 31 inches.—District Warden Willard G. Persun (Bradford)

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Recently, the Austin-Costello Sportsmen's Club notified me they would maintain their wired stocking areas on the First Fork of the Sinnemahoning Creek for the 1963 season. The Oswayo Valley Rod and Gun Club, at a recent meeting, decided to maintain their wired areas on Oswayo Creek this coming season.—District Warden Kenneth Aley (Potter).

Retiring Fish Commission Employe



SCOTT EARL BAILEY

Scott Earl Bailey was appointed in April, 1930, to the Fish Commission in the Propagation Division. He served as a Fish Culturist Assistant and Fish Culturist. Born on December 28, 1900, he was educated at Spencer School. He is married and has a son, Earl Bailey, and four grandchildren. Mr. Bailey is active in church work, teaches a Sunday School class and intends to take life easy, will reside in Corry, Pa.

I did a lot of early sucker fishing at Koon Lake (Bedford), where I fished with a retired railroad man. The RR man had a wooden shotgun shell box in which he carried all his gear except rods. The box was open on one side. In the box he placed a kerosene lantern that gave a fine light to watch the fishing rods at night and also gave out a lot of heat. The secret of keeping warm was in the old, long topcoat he wore. When he sat down the coat would hide the back of the box and the heat from the lantern under the coat would keep him as warm as toast.—Special Fish Warden Homer C. Shaffer.

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About five or six years ago I filed a Technical Case Report on an old fellow from Old Forge, Pa. He was an Italian and spoke very poor English. The "technical" was for having caught sunfish, chubs and suckers with a minnow trap and using the same for bait. He was sent a letter at the time charging him with using miscellaneous bait. One year later I picked him up again and he was using sunfish for bait taken with minnow set. I fined him for the second offense. Last Saturday I again checked him fishing one of our lakes. He said I had caught him before but wouldn't catch him again. I asked why. He said he received a letter from Harrisburg saying he was using miscellaneous bait and since he did not know what "miscellaneous bait" was, he kept on using sunfish. We all got a big chuckle out of his story. — District Warden Harland F. Reynolds (Wayne).

Here is a story related to **District Warden Ray Bednarchik** (Chester, Delaware and S. Berks) by an angler who witnessed he action. Two anglers were fishing from a boat on one of the rout lakes of the district and doing quite well catching trout. Every time a fish was caught it was placed in a mesh bag left ranging in the water. After catching a trout, one of the anglers placing the fish therein failed to tie it to the boat securely and t sank. Disgusted, the two men quit, went ashore. A short ime later, another angler snagged the bag containing the seven ish and rowed ashore. He removed the fish, returned the bag of the floundering fishermen then strolled merrily on his way.

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Fishermen on Gordon Lake report walleyed pike on the inrease. One angler told me that during the month of December to caught 21 walleye, all about the same size, the largest going 25½ inches. Several undersize muskellunge were caught and eleased.—District Warden William E. McIlnay (Bedford).

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It takes all sorts of people to make a world and fishermen re no exception. On December 1, 1962, the last day of bear eason, while on routine patrol atop Red Rock Mountain, I was mazed to see Lake Jean with an ice cover thick enough to upport a man's weight at this early date. Looking across Route 187 to a beaver dam on one of Lake Jean's feeder streams, here sat a fisherman in a row boat! He had bludgeoned his vay through at least three inches of ice to a position one third of the way across the pond and sat contentedly minding his wo fishing poles.—District Warden James F. Yoder (Luzerne and E. Sullivan).

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One of the most humorous highlights of last year featured wo Philadelphians who journeyed to Lake Jean to try their and at ice fishing. Upon arrival, they were greeted by an ice cover of twenty-eight (28) inches (actual measurement). Havng nothing at hand in the line of conventional ice cutting bars, etc., they set to the task of cutting their lone hole with a hand exe. About twenty (20) inches square at the top, it tapered to scant six (6) inches at the bottom. Their plight can be best nvisioned by anyone who has never tried this by considering hat the first stroke of the axe which breaks through fills the entire hole with water, leaving any trimming or enlarging of he bottom to be done with hands and arms submerged in the cy depths. One of the pair ventured, "This is our first attempt it ice fishing and I have a feeling we're going about it all vrong!"—District Warden James F. Yoder (Luzerne and E. Sullivan).

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When the Pennsylvania Fish Commission announced trout ould be taken through the ice there was some speculation as o best baits to use. While live minnows produced limit catches of brown trout, the rainbows were conspicuous by their abence. A few anglers began trying salmon eggs which they had n their trout fishing kits. These proved to be just what the loctor ordered. Rainbows in the 17- to 21-inch class were comnon at Harvey's Lake. Unfortunately, this discovery came at a ime when most anglers had few eggs left and stocks of the lealers were almost nil. One enterprising angler scooped up a small handful of eggs which had been deposited on the ice by a reshly-caught ripe female rainbow. He carefully stripped about our of the small eggs on a No. 6 hook and soon thereafter anded a 14-inch brown trout. These eggs are about one-half he size of regular jarred salmon eggs but they do produce!— District Warden James F. Yoder (Luzerne and E. Sullivan).

Outdoor Editor Bill Walsh Heads Duquesne Program

Outdoor writer and editor of the Eric Times, Bill Walsh has been appointed conservation director of the Duquesne Brewing Company. He will head up Duquesne's new 3-point Conservation Program designed to preserve and safeguard the Tri-State area's woods, waters and wildlife through cooperation, public education and specific conservation activities.

He is a charter member and past president of the Pennsylvania Outdoor Writers Association and has written many articles for the PENNSYLVANIA ANGLER.

D. E. Delacey, New Hope Conservationist, Dies

Donald E. Delacey, vigorous fighter for conservation and long-time champion of the outdoors, is dead. The New Hope, Bucks County, man was well known throughout southeastern Pennsylvania, was a member of the Washington Crossing State Park Commission, a charter member of the New Hope Sportsmen's Club and secretary of this organization and was associated with the Wildflower Preserve at Bowman's Hill section of Washington Crossing Park. He was also a Justice of the Peace in New Hope and a license issuing agent for the Fish Commission. He was a good friend of all lovers of the outdoors and will be sorely missed by his many friends.

Claude E. Mench, Jim Thorpe Sportsman, Passes On

Claude E. Mench, 75, of Jim Thorpe, Pa., passed away of a heart attack at the home of his daughter in Connecticut. He was secretary of the Northeast Division, Federation of Sportsmen's Clubs. He was first vice president and chairman of the Fish Committee of the Carbon County Sportsman's Association and a delegate from Carbon County to the Federation. Mr. Mench was very active in civic and charitable groups in his area. Another fine conservationist and sportsman over the Long Trail who will be keenly missed.





-Photo courtesy of Sharon (Pa.) Herald

CITATIONS went to Game Protector Arden Fichtner and District Fish Warden Richard Abplanalp at a recent holiday party at the American Legion Home in Mercer, Pa. Receiving the honors are, left to right, Abplanalp, Fichtner, Elmer Wherry, chairman of the program; Alan Morris, president of the county federation of sportsmen's clubs which sponsored the affair with Deputy Game Protectors; and Seth L. Myers, in charge of preparations.

LANDING NET SECURITY



By Albert G. Shimmel

Of all the equipment, necessary or otherwise, that the angler carries astream the landing net, as it is sold over the counter, is the most exasperating. It can also be positively dangerous. The offenders are the elastic sling and the dangling net bag.

The net has a positive affinity for brush, barbed-wire, projecting roots and tree branches. It attaches itself, unnoticed by the angler and stretches the elastic sling. Under strain the net pulls free and the handle of the net becomes a projectile capable of injuring the angler with a blow in the back or on the head.

A bit of ingenuity and a few seconds of time will solve the safety problem, tame the net and put it into position where it will fulfill its purpose when it is needed.

A French snap can be secured at most hardware stores. It will release under the pressure of thumb and finger. Screw such a snap into the handle of the net and secure it in turn to

Tips for-

Tying the Streamer

By DON SHINER

Because of the large size, the streamer is a simple fly to make. And the materials used in its construction are as varied as the weather in April. Naturally, definite materials and colors are used to tie established patterns, but others can be made with whatever materials are at hand, and limited only to your imagination.

The illustrations here show the method of tying a typical trout streamer. Study these for a moment. Note that in each picture a thread dangles downward from the fly. The primary function of this is to hold the materials securely to the hook. Look first at the photo illustrating the tail being held in place. This appendage is simply a group of fibers cut from a duck's wing feather. Other materials such as bucktail, peacock herl and wool yarn can also be used. All of these are held in place by this tying thread.

Next in the tying sequence is the body. Strands of silk floss, chenille, wool yarn and tinsel are most popular. These are held securely to the hook by wrapping the tying thread around one end and then wrapping the material around the shank until the distance from bend to eye is covered. In some cases two materials are used; first floss or chenille, then tinsel wound spirally over the body to give a glistening effect. The first several photos show silk floss in use. In the picture showing wings being added, chenille has been used as the body material.

Next comes wings. This part is made with groups of feathers, as illustrated here, or with materials such as polar bear hair, bucktail (hence the name of a streamer fly) or hair from a squirrel's tail. Wings can also be combinations of hair and feathers, each tied on top of the other for a special effect.

For all practical purposes the streamer is complete at this stage. Though for added appeal, the majority of fly tyers prefer to add a "cheek" and "throat" to the fly. These are added to the side and underside of the shank. Undeniably, these add to the appeal streamers have for lunker trout.

The last thing of importance is knotting the thread at the eye. The tying thread is wound over the ends of the wing material and tapered down gracefully to the eye. Here it is looped, half-hitched or knotted in such a way that the thread cannot unravel. The whip knot is by far the most popular. Then a drop of varnish or cement is placed on the thread to prevent it from fraying.

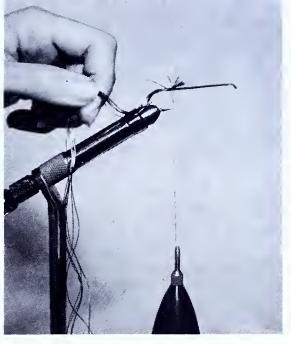
These steps constitute the construction of a streamer fly. They also apply to other types of flies—dry, wet and nymphs—though slightly different materials and tying procedures are used.

the ring in your basket harness. Retain the elastic and it will prevent the net from dropping at some crucial time.

An ordinary snap clothespin of wood is fastened to the net handle with a pair of brass screws. The net bag is given a turn around the frame and the tip secured in the jaws of the clothespin. This keeps the net flat against the frame. It can be released by thumb pressure in less time than it takes to shake out the folds of a loose net. The net thus secured is out of the way, almost tangleproof yet when the clip is released and pressure on the handle applied, the net drops of its own weight into position for use.



cut a section of fibers from a duck's wing e to the shank to serve as the streamer's



Next tie in several strands of floss or chenille for the body.



Wind the floss around the shank of the hook to form the streamer's body.



ps you would like to rib the body with tinsel. Do so in this manner.



Several long hackle feathers are then tied near the eye of the hook for the streamer's long wings.



Cheek and throat materials are tied in place for the finished touches.

The knot used to finish the head is important. This keeps the fly from unraveling. The whip knot is the popular one used.



The whole lineup of streamer flies is tied in this manner. You will enjoy making a box full of streamers and enjoy catching nice trout with them.



Cornell University College of Agriculture Ithaca, N. Y.

Dear Editor:

I received the December issue of the ANGLER that included the Explorer Scout trout nursery article. Thanks many times for giving these industrious boys and the Canton Rod and Gun Club great cooperation.

Incidentally, the trout that were raised at the nursery were released a couple of weeks ago under the supervision of Warden Willard Persun. It was truly amazing how the things grew. Many of the trout were better than a foot long at the time of release. The boys are currently busy collecting deer livers to be frozen and used for trout feed next summer.

Thanks again for the interest shown in this project.

Sincerely, Howard E. Bullock

March, in the Julion colendar, was the first month of the Roman year. Being a warlike notion, they dedicated the month to Mars, the God of Wor. The Anglo-Saxons called it Hyld-Monath, the loud and stormy month, because of its rough, windy, boisterous weather. Actually, Morch is the month of the awakening of spring, when the greening up of trees and shrubs appear. The birds return to the northern climes, and the farmers begin their plowing and planting, and folks ore seen chasing their hats. It is really the month of promise . . . of flowers and fruits to come.



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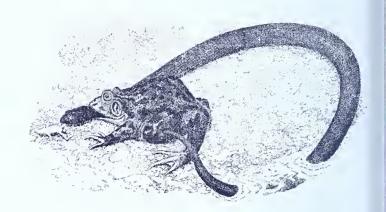
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Pennsylvania Fish Commission, Harrisburg, Pa.

Gentlemen:

Did you ever hear or see what the enclosed photo portrays?

I and three others saw this on the shore of a lake this past summer. Both the water snake and the bullfrog were motionless, and for some time, when we discovered them. But just before I had a chance to snap the shutter of my camera the "drama in nature" broke up. So I had an artist friend paint the scene for me, and I photographed it.

Believe me, four of us witnessed this. I am wondering whether any other human(s) ever witnessed such a demonstration of concern and intelligence on the part of a bullfrog.

I'd appreciate your reply.

Sincerely yours, Wilmer H. Long

The Rev. Wilmer H. Long 3019 North Wales Road Franklin Village Norristown, Pa.

Dear Rev. Long:

Your most interesting letter with the attached picture of "chain reaction feeding" has been forwarded to this office for reply. We assume that the smaller frog might have been a leopard frog which had been captured and was being swallowed by a watersnake which in turn had been grabbed by a bullfrog.

In our field experiences we have seen the bullfrog eat or at least attempt to eat nearly everything that came within sight. For example, they take trout, bullheads and small sunfish. They will also take and swallow the largest nightwalkers, sometimes seven or eight inches long, and while at Cornell University I recall there was at least one record of a bullfrog taking a young duckling. Bullfrogs are attracted by most anything that moves and this may be the reason why the bullfrog struck at the snake which had a smaller frog, perhaps writhing, in its mouth. We, therefore, believe the action of the bullfrog was merely a feeding reaction and not one of concern or intelligence on the part of the bullfrog, although one could speculate for a long time on the reason underlying this unusual action of the bullfrog

For your interest we are enclosing a copy of "Pennsylvania Reptiles and Amphibians" which we believe you will find interesting reading and a handy reference guide to carry with you when you are afield.

Thanking you for writing us about this interesting incident

Yours very truly,
Gordon L. Trembley,
Chief Aquatic Biologist
Pennsylvania Fish Commission

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Jake me fishing, Daddy!

Show me a parent who hasn't had such a request and you'll show me a parent who has missed a mighty important facet of parent-child relationships. Books have been written about the recreational values, the nerve-quieting and soul-searching opportunities realized by those who spend an hour or a day at their favorite fishing spot.

In Pennsylvania the parent who wants to take his youngster fishing is blessed with unlimited opportunities to do so. There are thousands of miles of streams, plus ponds and lakes of all sizes, where many species of fish ranging from the bluegill and yellow perch to bass, muskellunge and walleye are to be found. In addition, there are many miles of trout streams where the parent and child can enjoy fishing of the stocked variety, or they can search out the more remote streams where the usually smaller, but highly colored "natives" grow.

At the turn of the century when fishing was more apt to be a matter of providing food for the family table than one of fishing for fun, the extent of fishing waters was limited mostly by the ability of the angler to arrange transportation to the general area in which he wished to fish.

Pollution, the automobile, urbanization, industrialization and many other developments over the years have done much to restrict the ready availability of good fishing waters in some areas of the Commonwealth.

Through all of these years of changing conditions, the Pennsylvania Fish Commission has attempted to maintain, improve and even restore fishing. This constant struggle to provide good fishing for present generations of anglers, as well as to insure it for future generations has been a difficult one for the Commission and its staff. There never has been a time when a surplus of funds was available to finance this work. There have been times when the determination of Commission workers to provide an important service to their fellow Pennsylvanians was stretched to the limit to keep things going.

At the present time the failure of the income from license sales to keep pace with steadily increasing operational costs is making the task impossible. The present rate of fish stocking, the acquisition of lands and the development of fishing waters for the public cannot be continued.

The Fish Commission has requested the sportsmen of the Commonwealth to support a \$2 increase in the cost of fishing licenses. This amounts to less than a penny a day, and is estimated to be the minimum amount needed to restore Commission activities to a normal and needed level. Immediate return to a financial level which will permit the restoration of the Commission's management, acquisition and development programs is vital to the present generations of parents and youngsters. It is perhaps even more important to future generations that these programs be continued and expanded quickly.

The parent who steadfastly refuses to meet the Commission's request for additional funds refuses to recognize the imperative need for adequate financing of the programs designed to provide him and his children with good fishing. Worse than that, however, the parent or person who refuses to recognize the present needs of the Fish Commission almost certainly is destroying the plans and programs which would insure good fishing for future generations.

The father who refuses now to pay the less than a penny a day needed to perpetuate good fishing in Pennsylvania is making it impossible for the father of the future to say "yes" when his youngster says—"Take me fishing, Daddy."

Russell S. Orr, Chief,
 Conservation Education Division,
 Pennsylvania Fish Commission.

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Pennsylvania Angler

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APRIL, 1963



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PENNSYLVANIA'S WARM-WATER PROGRAM



The potential is great but Pennsylvania fishermen must be willing to invest in the future

By ALBERT S. HAZZARD

Assistant Executive Director Pennsylvania Fish Commission

Some people seem to have the mistaken notion that the Pennsylvania Fish Commission has been doing little or nothing for warm-water fishermen, and that its only work has been for the trout fisherman. It is easy to understand how this idea came about. Prior to 1955, more than half our budget was spent on hatchery propagation and distribution and most of that went for trout production. Law enforcement and most other activities in those years were also pointed toward the trout fisherman. However, beginning in 1956 and increasingly to the present, we have been doing more for he warm-water fishermen. A careful analysis of expenditures for the last fiscal year shows that 53 per cent went for warm-water fishermen and 47 per cent for trout fishermen.

When a new lake is built, new access areas are developed or new species of fish are introduced, these are permanent improvements in contrast to the shortived benefits of a planting of legal sized trout.

The Fish Commission has built or rebuilt 14 lakes. Of this number, 11 have been constructed since 1955. Ill of these are for warm-water fish. It is expensive to acquire and develop a lake site, but this is one sure way to add to the fishing opportunity for Pennsylvania anglers. Most of these lakes have been built close to centers of large populations lacking fishing waters. Most of them have been constructed with federal aid. in fact, all of the Dingell-Johnson (federal aid) funds which are rebated to us from the 10 per cent excise tax on fishing tackle, have been spent in lake building. Federal aid funds received from 1951 to 1963 inclusive total \$1,440,800. This amount has been matched with regular Fish Commission funds for the construction of these lakes on a 75 per cent federal and 25 per cent state basis.

Thirty-one lakes have been leased or purchased by the Fish Commission, 20 of them since 1955. All but four have been developed entirely or largely for warmwater fish.

Of 68 access sites on streams, 47 of them have been purchased since 1955. Forty-eight of the 68 are for warm-water fish. Of 14 access sites acquired on lakes, nine have been secured since 1955, and all of these are warm-water fishing lakes.

I believe that the above is pretty good evidence that warm-water fishermen in this state have not been neglected.

The question is often asked why we do not stock more bass, walleye, pickerel, pike and other warm-water fish. Part of the answer is that these fish are considerably more expensive to raise to adult size than trout. They must be reared largely or entirely on natural food and produced in ponds rather than in troughs and raceways. Trout, of course, are fed entirely in confined areas on artificial food, now very largely on pellets. Trout can be reared to a 7- to 9-inch size in about a year and a half at a cost of about 30 cents apiece. In contrast, it takes two or three years to produce a legal sized bass or walleye. A tremendous investment in land and ponds would be required to develop a hatchery

capable of producing two and one-quarter million bass and walleye.

At present we have five hatcheries where all or the majority of the emphasis is on warm-water fish production. This production accounts for approximately 40 per cent of the fish propagation and distribution budget of the present program. These hatcheries are primarily for the production of fingerling walleye, bass, northern pike and muskellunge. Plantings of frv (tiny fish just emerged from the egg) are effective in stocking newlymade lakes or those from which all fish life has been removed by draining or by chemical means. These fry, however, have little or no use in stocking waters which already contain fish life. The little fish are so vulnerable that they are quickly consumed by the larger fish present or suffer such keen competition from naturally produced fry that they quickly lose out in the race for survival.

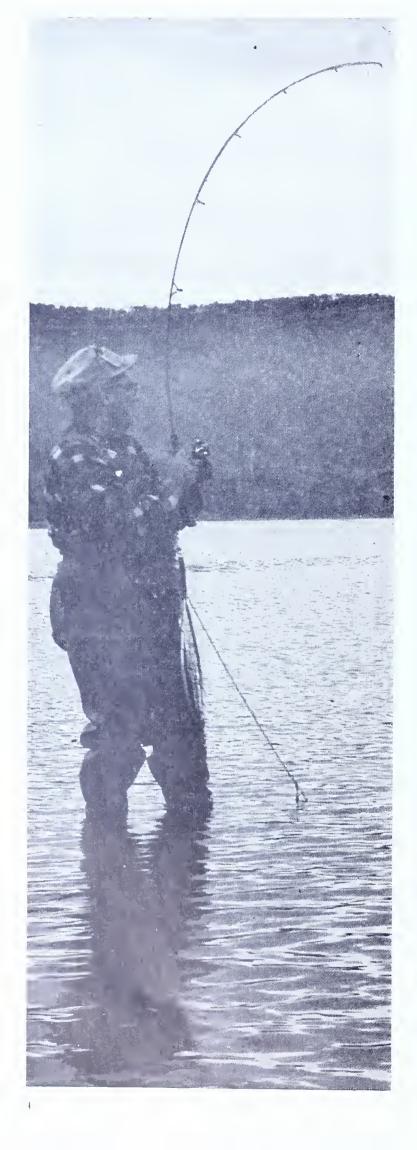
In order to successfully introduce new species of fish into rivers and lakes already containing fish life, walleye, bass, pike and muskellunge must be reared to the fingerling size. This operation is costly as illustrated by the cost per pound to produce these warm-water fingerlings. The cost varies from \$13.52 to a high of \$93.39 per pound.

The total number of fingerling warm-water fish produced and planted was 286,429. Fry, including elvers transferred from the lower Susquehanna River, totalled 11,360,000. This included 7,600,000 walleye, 10,000 muskellunge, 900,000 northern pike and 100,000 largemouth bass fry.

Because of the heavy losses encountered in hatching, large numbers of eggs from such fish as muskellunge and walleye must be taken. These must be held to insure enough fish for stocking the fingerling rearing ponds. Those not needed for this purpose or to start new lakes are released in the nearest suitable waters, usually those from which the breeders have been borrowed.

As indicated above, the majority of fingerlings are used to introduce new species into waters containing other fish life and where these fish will have value in





improving the variety and quality of the fishing. Probably the best example of this program is the introduction of the muskellunge to waters outside of its natural range. Originally muskellunge were found only in Lake Erie and the waters of the Allegheny River drainage. During the past years these fish have been stocked in approximately 30 different rivers and lakes throughout the Commonwealth. In every instance there has been at least some survival of the muskellunge fingerlings. In a number of the waters fish of legal size, 30 inches and over, have been taken. This has added greatly to the interest and enthusiasm of fishermen. Everyone wants to catch a trophy fish and the muskellunge is king of trophies.

The northern pike is a close second. We now have a number of waters in which these fish were stocked and where they have attained a weight of 10 and 12 pounds and more. Walleye established through fingerling planting have also made important additions to lakes where they were not originally present. Bass fingerlings have been used largely in stocking new lakes. After the first year of planting, fish of this size must be used to insure survival and good fishing until natural reproduction takes over the job.

Introduction of these predatory species has still another value which may be even more important than establishing a new game fish. Pan fish such as bluegills, perch, catfish and others such as suckers, carp, etc., commonly reproduce too successfully, especially in lakes, and become stunted for lack of food. Muskellunge and northern pike are especially voracious fish eaters and may help to keep the fish population in balance.

Another part of the warm-water fish program has been salvaging and planting adult warm-water fish to supplement natural production. These fish have largely come from Lake Erie, where they have been secured from commercial fishermen and by the operation of our own trap nets. We also purchase about 100,000 adult catfish each year from commercial fishermen operating on the lower Delaware River. A total of 4,025 small-mouth bass, largely from Lake Erie and 5,700 adult largemouth bass mostly from the Pymatuning Sanctuary were planted in selected waters last season. The number of adult warm-water fish salvaged, including those produced in the few hatchery lakes available for this purpose, totalled 184,245.

Although the total number of fingerling and adult warm-water fish stocked is small compared with the number of trout planted, these fish are largely used for permanent improvement of the fishing and not for put and take angling.

Probably the best argument against statewide stocking of warm-water fish, except to establish them in new lakes where they are not now present, is the fact that these fish are so prolific. Even where the waters are very heavily fished, more than enough adults survive to spawn more young than these waters can grow to maturity. The bottleneck for warm-water fish is the food supply. Practical ways to increase the food supply in warm-water fish production in fishing waters have

not yet been worked out through research. It is the ishery scientists' biggest problem.

We believe that we can do the best job for warmvater fishermen in Pennsylvania by acquiring and ouilding fishing lakes especially in areas near large centers of population where additional fishing waters are most needed. We can also add to the fishing opporunities for warm-water anglers by acquiring access to the major rivers and lakes of the state. Most of these waters are open to public fishing if anglers can get to hem, but more and more these waters are being posted against trespass and access to them is being denied. Unless the Commission continues to take vigorous acion to acquire sites on major rivers and develop places where boats can be launched and fishermen can enter, here will not be enough places where the public can ish within the next generation. In this connection Project 70 provides a most important opportunity to Pennsylvania fishermen and boaters. Five million dolars of the 70 million bond issue which will probably be on the ballot this fall will be made available to the Fish Commission, and it is planned to spend the major part of our allotment for the purchase of fishing waters or access to them.

Still another way to insure good warm-water fishing s to reduce present pollution and to strictly guard against any new sources. In this work, sportsmen can be particularly helpful by promptly reporting fish kills and suspected sources of pollution. Reports can be nade to district fish wardens and to regional engineers of the State Department of Health.

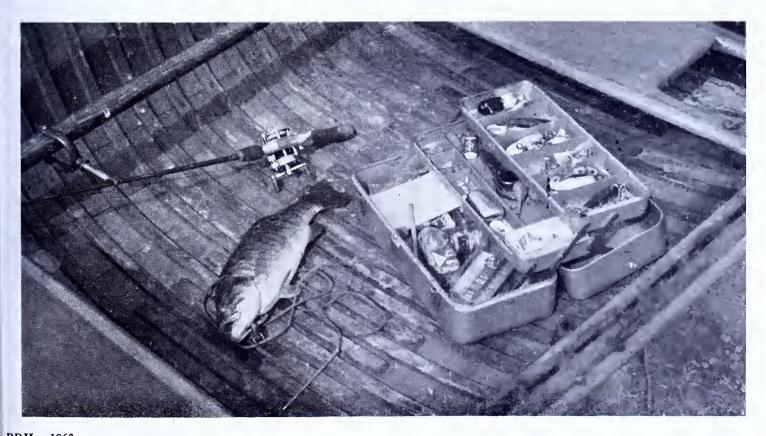
During 1962 our fish wardens investigated a total of 118 suspected pollution cases. Seventeen were prosecuted and fines of \$2,650 levied. In addition, voluntary contributions totalling \$71,665 were made in 3 cases, including the famous Susquehanna kill; 48

cases are still pending. A total of 462 cases of pollution were investigated during the past four years. All but a few of these involved warm-water fish.

In summary, if pollution can be reduced and new sources of pollution prevented—if access can be secured to existing waters—if the present active program of acquiring lake sites and developing fishing lakes in the Commonwealth by the Fish Commission, the Department of Forests and Waters, Soil Conservation Service and the Army Engineers can be continued, and if these waters can be supplied with the fish that they need, Pennsylvania anglers can be assured of improved warm-water fishing in the future.

But, unless additional funds can be secured through increased license revenue or otherwise, further curtailment in the present program of the Fish Commission is inevitable. If the program of 1960-61 is considered normal and desirable, it would require \$650,000 to restore that program. Assuming that the proposed \$2 license increase provides approximately a million dollars more in revenue per year, it will be seen that about 2/3 of this amount will be required simply to put us back where we were a year ago, leaving about \$350,000 a year to expand desirable activities such as stream and lake improvement, building additional fishing lakes on our own or through cooperation with the U. S. Department of Agriculture and local district soil conservation directors, county commissioners and others under the P. L. 566 program.

If additional funds are not secured, a 30 per cent cut in the trout planting program will be inevitable. Funds will not be available to build lakes on our own or in cooperation with other agencies. Six wardens who have been lost through death or retirement cannot be replaced, and Pennsylvania will not be able to move ahead in an active fishery program.



PRIL—1963



 ${
m S}$ INCE 1934 Fishermen's Paradise, located in Spring Creek near Bellefonte, Centre County, has been a mecca for many anglers. Originally planned as a demonstration of fly-fishing and of stream improvement devices, it later developed into an area where, at no charge other than a Pennsylvania fishing license, anglers could fish five times per year and take home one trout per trip. As many as 23,000 anglers utilized the area during the special season lasting two months. On opening day, which was usually about May 15, thousands of anglers jammed the mile-long Paradise to try their luck for the big trout there. An unknown number of spectators, photographers and reporters stood by to watch or record the activities. Fishermen are usually interested in catching big fish and undoubtedly the main attraction here was the 12,000 or more big trout stocked at intervals throughout the special season by the Pennsylvania Fish Commission.

As in any project of this kind, some were for it and others agin' it. To the fishermen who didn't mind elbow to elbow fishing here was a chance to catch, play and take home a lunker trout. Obviously this was not a paradise for anglers who preferred a degree of privacy in their recreation. However, many ardent fly-fishermen did fish here—and many of them on a fish-for-fun basis. Perhaps the most valid criticism of the project was its cost to the Pennsylvania Fish Commission (up to \$57,000 annually) and the fact that only a relatively small percentage of the licensed fishermen used the project.

Paradise



 $\stackrel{\wedge}{\sim}$

Faced with decreasing revenues from fishing license sales, it was necessary for the Pennsylvania Fish Commission to make reductions in many of its programs in 1962—one of which was the closing of Fishermen's Paradise. An additional reason for this step was the current pollution problem in Paradise and in Spring Creek above which greatly reduced the kinds and numbers of trout food organisms in the stream. Perhaps this ecological change was most noticeable in the disappearance of the shadfly hatch for which the Paradise was once so famous. It was reasoned, therefore, that the project could no longer support the heavy concentration of big trout it once did without continual artificial feeding. However, it was believed that the stream could maintain a lighter load of trout.

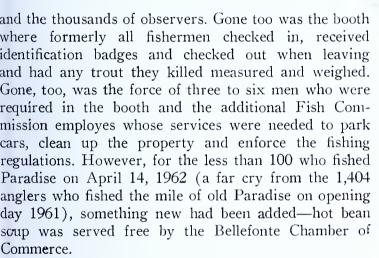
To retain some semblance of the old Paradise and at very little cost, the Commission, after considerable deliberation and after hearing recommendations of the local Chamber of Commerce, decided to convert Paradise into a fish-for-fun project. Thus on April 14, 1962 (the opening date of the state-wide trout season) "Fish-for-Fun at Paradise" was inaugurated. The regulations covering the new project included some of those for special fly-fishing streams such as use of artificial flies only and conventional fly-fishing tackle but added (1) that no trout might be killed or had in possession and (2) that it would be open to fishing the year around. Thus the major differences between the old Paradise and the new Fish-for-Fun Paradise were that under the old system licensed anglers were required to register in and out at a booth, were allowed a total of five trips per angler during the special twomonth season and could kill one trout each trip whereas, under the new system the licensed angles. could fish whenever he wished (even in January if he wanted to) without the fuss of registering but he mus return all fish caught to the stream.

The angler who visited the fish-for-fun project of the opening day saw many changes over past years Gone was the great opening day crowd of fishermer

st or Regained?

GORDON L. TREMBLEY

Chief Aquatic Biologist
Pennsylvania Fish Commission



In early April, 1962, a fair population of trout was found in the project stream by sampling with electrofishing gear and for this reason no trout were stocked there prior to the opening of the season. During May about 50 adult trout were scattered over the project each week. In June two plantings totaling 200 trout were made. On July 3, 425 trout were stocked and on August 30, 500 trout were stocked. The purpose of these plantings was to replace trout migrating upstream and out of the project during the warm summer months and to provide "fresh" fish at various times in the hopes that these would stimulate the resident "hookshy" population to take the lures and hence pep up the fishing. To obtain an indication of the loss of trout in the project due to hooking or natural mortality a screen was erected at the lower end of the project and renained in place for about one month during midsummer. Dead fish recovered from this screen were five brook trout, seven brown trout, three rainbow rout and thirty-seven suckers. Thus it appeared that trout mortality, at least in the lower section of the project, was not appreciable. The relatively high rate of mortality of the suckers has been noticed for the oast two or three years in this portion of Spring Creek and is possibly due to some toxic materials on the ottom taken in with their food.



WINTER FLY-FISHING at the Paradise.

To determine the utilization of the fish-for-fun project by anglers, a method of angler counts was devised whereby employes at the nearby fish cultural station on their regular rounds made three angler counts daily: 9:30 to 10:30 a.m., 3:00 to 4:00 p.m. and 7:30 to 8:30 p.m. Results of the angler counts are shown in Table 1.

Table 1. Summary of Angler Counts Made Three Times Daily for Period April 14, 1962, to March 1, 1963.

Month	9:30-10:30 Morning		7:30-8:30 Evening	Monthly Total
April (April 14-30)	371	566	81	1,018
May	661	1,267	1,116	3,044
June	647	1,145	1,011	2,803
July	464	720	606	1,790
August	317	713	656	1,686
September	153	360	430	943
October	<i>7</i> 5	250	223	548
November	17	56	24	97
December	17	37	11	65
January	4	<i>7</i> 4	38	116
February	7	50	36	93
Total	2,733	5,238	4,232	12,203

In reference to Table 1 it should be noted that the columns headed "morning," "afternoon" and "evening" are monthly summaries of the actual number of anglers fishing the project during the specified periods. The monthly total column does not reflect the true total number of anglers since those who fished at periods other than when counts were made were not counted at all, and those who fished during more than one angler count on the same day were counted more than once.

Greatest angler utilization was in May. Anglers fell off rapidly in September perhaps partially due to the fact that many did not appreciate that the fish-for-fun



project was open after Labor Day (which marks the closing of the trout season in other trout streams).

Although the winter of 1962-1963 brought unusually long periods of ice cover, fly-fishermen, dressed in woolens, were in evidence whenever stretches of the project became open. Some of these anglers were just curious to see if trout would take the fly in winter (they did!), while others were seeking a release from winter lethargy. At any rate winter fly-fishing was started on a small scale in Pennsylvania.

Comments from Anglers

To obtain an indication of anglers' catches and to learn what they thought about Paradise as a fish-for-fun project, cards for voluntary returns were placed in boxes located at each of the two major parking areas. The cards were collected at intervals and categorized. Nine hundred thirty-two cards were turned in during the period of April 14 to December 31, 1962. All but ten of the sixty-seven Pennsylvania counties were represented in the returns. Greatest returns came from three counties near the project—Centre, Clearfield and Blair—but the next highest returns were from two of the most distant counties—Allegheny and Westmoreland. Anglers from seventeen other states and one visitor from England filled out cards.

From the data on the cards (summarized for period April 14 to December 31, 1962, only) 829 anglers fished a total of 4,104 hours, caught and released 7,697 trout and it thus required an average of 1.87 hours to catch a trout. Since these were voluntary returns, no attempt was made to expand the data further.

Perhaps the most interesting data submitted on the cards were the comments of the anglers using the project. This was an opportunity for the anglers to go "all out" in their gripes or praises and many of them did. In fact, 476 of the 932 anglers who filled out the cards gave written comments on one or more matters dealing with fish-for-fun. Of the 476 returns, 315 made positive statements on how they liked—or didn't like fish-for-fun at Paradise. Two hundred forty-two of the 315 definitely favored fish-for-fun over the old Paradise and 73 definitely preferred the old Paradise. According to these figures about 77 per cent of those who expressed any preference favored fish-for-fun at Paradise and 23 per cent did not favor it. Of those who preferred the old Paradise, 60 wanted it returned in the same form as before whereas 13 would be willing to pay from a "small" fee to \$1.00 for each fish killed.

Of those who were wholeheartedly in favor of fishfor-fun at Paradise, 41 asked that fish-for-fun streams be established in other counties. In a very general way it appears that those who reported the best catches favored fish-for-fun.

During a period in the summer, trout did not take flies readily—either because they had become "hook shy" or perhaps due to the degraded biological and chemical characteristics of the stream. Whatever the cause, the result was reflected in such angler comments as "I can't help it if the fish are smarter than I am—it's still fun"; "Why not remove the educated trout in

Paradise—stock them in other fly-fishing streams—and stock fresh ones here?" and "Your fish are too sophiscated. Please stock some dumb b----s next time I come."

Other comments of interest suggested the use of barbless hooks which are not required under fish-for-fun regulations, keeping trophy trout only, stocking more and bigger trout, cleaning up the pollution in Spring Creek, need for more stream improvement devices, providing a fish-for-fun stream for ladies only at Paradise, letting the public feed the fish, better law enforcement on the stream and a request to "allow women to fish for free (without a license) since we don't catch many fish anyway."

One of the problems confronting anglers in Spring Creek—and Paradise is no exception—is the luxuriant growth of aquatic weeds which occurs during spring and summer months. This is attributed to the fertilizing elements contributed by the treated sewage effluent and detergents in the stream. The situation became so bad in June that it became practically impossible to fish—and many were the comments from anglers. To alleviate the situation, hatchery personnel cut and removed the weeds manually in late June. Apparently this improved fishing success as numerous card comments expressed thanks for the job.

The only conclusion that can be drawn from the results of the first eleven months' operation of Fish-for-Fun at Paradise is that of the anglers who used it and commented on it over three-fourths were in favor of it and less than one-fourth against it. One could speculate that many who did not favor this type fishing didn't visit the project last year and thus didn't have opportunity to comment. It is just as true that many other anglers were not aware of the fish-for-fun project because of its newness and thus did not fish there. Certainly the objective of the Pennsylvania Fish Commission to retain trout fishing at Paradise at a greatly reduced cost was attained.

The writer has talked with anglers who never missed an opening day at the old Paradise—not to fish but to watch the rodeo type fishing. To them it was a fisherman's "old-home day" and will be missed. On the other hand we talked last fall to an angler who had "discovered" fish-for-fun at Paradise just before a planned trip to Nova Scotia to fish for salmon. He didn't go to Nova Scotia. "Why should I," he said, "when I have this kind of fishing right here at home?"

Time alone and the habits of our anglers will tell whether Paradise has been lost or regained—whether there is more enjoyment in fishing with hundreds of others or with only a relatively few and whether lasting memories come from taking trout home or from the fun of just catching trout—or as so well stated by one lady commenter "Thanks for showing me the beautiful fish my hubby goes fishing for but never brings home. It is a beautiful place and the rushing water is calming—guess that's why he goes fishing—to rest."

In the meantime the Fish Commission will continue the project at Paradise and you are invited to fish there at any time—for fun.



NEARLY A THOUSAND anglers used these boxes for making voluntary returns and comments.

Pennsylvania Fish Commission, Harrisburg, Pa.

Gentlemen:

It occurred to me you might be interested in our experiences fishing the new "Fish-for-Fun" project on Spring Creek, I have two fishing companions, Dr. Claude A Gette and Rev. Carl C. Gray. All are ardent dry fly-fishermen and not at all interested in keeping fish, so the "Fish-for-Fun" project is right down our alley. Frankly, when it was run as a Paradise, we despised the place. Too many people and everyone trying to catch a big one to take home. The first part of last season we fished the project at Young Womans Creek but about the middle of May we decided to try our luck on the project on Spring Creek. Our first day there was very successful, having caught about 40 nice trout. Well, the result was that we fished no other streams all season, and have fished every month so far including January. We found the trout stopped taking dry flies the latter end of September. Being interested to know whether or not it was possible to catch trout in the cold months, we tried it four or five times in October, using wet flies and nymphs. We also tried it in November and December and this month. Each trip was very successful and caught several hundred dandies.

Dr. Gette and I both are retired and have plenty of time, however, Rev. Gray can only go one day a week. Dr. Gette and I made over 60 trips and each time had lots of fun. We met many fine gentlemen there and enjoyed exchanging flies and information. We also converted four or five of our friends to the Fish-for-Fun idea and am sure the fever will spread. We feel that such projects are the only solution if we expect to keep the fine art of fly-fishing alive for the younger generation. We also heartily approve of the increase in fishing licenses. I am sure no one will believe me when I tell you we caught over 1,000 trout, most of them from 10 inches to 22 inches and that is a lot of fish and also a lot of fun. Please keep it going.

Sincerely yours,

George R. Griest, Philipsburg, Pa.

BIG FISHING CREEK AND THE KEYSTONE SHORTWAY

DR. ALVIN R. GROVE, VICE PRESIDENT Pennsylvania Federation of Sportsmen's Clubs

(This article appeared in the Pennsylvania Sportsman, March, 1963)

MOST conservation groups within the Commonwealth have approved Project 70, in principle at least. We agree that recreational facilities, proper land use, the development of green belts, and all the other benefits that accrue to water-resource management, flood control, improved recreational use of water and land are very worth while.

Businessmen, economists, citizens in general, and conservationists approve of the development of an adequate highway system. They see faster and more convenient travel, all-weather use of major highways, and the increased use of relatively inaccessible areas. The Pennsylvania Shortway is one of these systems and is accepted as needed and desirable.

In some instances, however, a conflict of interest is bound to develop. The building of a highway system causes dislocations in the land and the proposed purposes of the land which are most often cited as the need for the highway in the first place. Builders of highways, for example, explain that vast inaccessible tracts of hunting land will become available to more hunters. Yet, they simultaneously build the highway through the center of an isolated area dividing it into two pieces, either of which is too small to provide the hunting advertised. Highways also bring fishermen to famous waters where the angler will spend his time and his money for lodging, lures, gasoline, food, and, of course, enjoy himself on such waters with the catching of many fine trout or bass.

But we proceed to destroy the very water we advertise as a main attraction in the construction of the highway. This situation exists in the central part of the State on Big Fishing Creek.

At this time, the section of the proposed Shortway that touches on the western part of Clinton County and the eastern edge of Centre County is planned to cross the mountains at Tylertown and use as its roadbed the Lamar Valley, through which Big Fishing Creek flows. There is every indication that the new highway will cross Big Fishing Creek several times in a five-mile stretch in the Lamar Narrows, with additional disruption of the stream by cuts and fills.

In addition to the actual location of such a highway, there are dangers accompanying the building of such a roadway because of the necessary dynamiting. This might result in changes of underground waterways, with



the possibility that underground dams and the resulting springs will disappear. Of course, one cannot prove that this will occur but neither can the engineer guarantee that it will not or cannot happen.

What about Big Fishing Creek? Is it worth saving? If there were four streams of importance in Central Pennsylvania, they were Spruce Creek, Spring Creek, Big Fishing Creek and Penns Creek. Some would insist that Bald Eagle be added to this list and we would not disagree.

Spruce Creek is almost entirely privately owned and operated through a club system. It is not generally open to the public. The establishment of a milk-receiving plant at the head of this creek has already provided a rather constant source of pollution and about a year ago was the cause of a fish kill there.

Spring Creek, below State College, is polluted with detergents being the main offender and some partially treated sewage, excessive growth and decay of plant material, lowering of the dissolved oxygen and other factors have already turned much of this stream into a warm-water stream of doubtful value.

Penns Creek is a mighty stream but changes in the cover along its banks, exploitation of some of it for cottages, increasing siltation, and the pollution of one of the large springs feeding it at Spring Mills begin to forecast trouble for this big water.

Big Fishing Creek has been essentially unchanged and might, at the moment, be rated the number one stream in Central Pennsylvania for trout fishing. Maybe it should not outrank the other streams mentioned but the facts are that it does at this time.

If through highway construction the springs are lost

that feed this stream, we will lose 18 miles of some of the best water left for trout fishing in the Commonwealth. If this does not happen, then we can be certain that about five miles will be lost through construction of bridges and roadway. This can easily change the downstream ecology to conditions that will harbor only suckers, carp, sunfish, minnows and other rough fish. In any event, the tremendous value of this stream will have been sacrificed on the altar of highway construction.

There are some who will say . . . so what?

Let me add that located on this same watershed and deriving its water from the same springs as the stream itself is the Department of Interior's federal hatchery at Lamar. This is a million dollar investment and the program for development involves an additional \$750,000. This hatchery has an annual payroll of \$65,000 and produces \$120,000 worth of trout each year for recreational consumption. All of this would be lost if just one blast of dynamite destroyed one underground spring. Is it worth the risk?

Highway planners say this is the route that should be used because it is cheaper. They point out, too, that less salt and cinders would be used in the wintertime. Now it's our turn to say . . . so what?

Would we deliberately decide to build a highway that might destroy a hatchery worth one million dollars and prevent the expenditure of another \$750,000, in addition to eliminating a product worth \$120,000 each year and a payroll of \$65,000?

These are hatchery facts. But what about the stream? Is it important that we try to save it? How good is it really?

By actual stream survey, Big Fishing Creek supports more than 200 pounds of fish per surface acre of water. Many so-called trout streams of Pennsylvania support four or five pounds of fish per acre. Trout, and this is a trout stream, account for 90 per cent of the fish population and three quarters of the pounds of fish present. In the stretch of water in the Narrows, described as that which will be destroyed by bridge building and roadbed construction, the estimated trout population was, at the end of the 1962 fishing season, 248 legal trout per surface acre of water or 1,133 legal trout per mile of water. In addition to these legal-sized trout, another 10,000 sublegal trout were wedged in between the legal ones. We venture to say that there is no other trout stream in the Commonwealth as filled with trout as this stretch of water.

A trout population of this size indicates a suitable habitat. Clean water of suitable temperatures, a good food supply, adequate winter protection, spawning areas (most of the holdover fish are stream bred) must all be there

Growth rate, also an indicator of the stream's quality, is as good on Big Fishing Creek as in any other limestone stream and much better than in freestone streams. For example, in age class II, brown trout run 9-9.4 inches in length and brook trout from 8.9 to 9.3 inches. Trout of freestone streams in the same age class range

from 7.2 to 7.7 inches for brown trout and 5.1 to 5.7 inches for brook trout.

Another indication of water quality is the kind of aquatic insects present. We list a partial summary of those in the abundant and very abundant categories.

Corydalidae, Rhagionidae, Brachycentridae, Hydro-psychidae, Heptagenidae, Baetidae. In way of explanation for the angler, the first group is closely related to the hellgrammite; the second group to the small true or two-winged flies; the third and fourth groups to the caddis flies; and the last two are May flies.

Some fishermen, as well as skeptics, might say that this is all fine but who fishes Big Fishing Creek in the so-called Narrows?

On four days in 1962, from May 8 to May 12, a count was made of the anglers on four miles of the water in the Narrows. The count was a partial one on three of the four days and was complete on only one day. There were on this four miles of water on those four days an average of 32 fishermen per mile of water. Over 600 fishermen used this four-mile stretch of water for recreation in four days.

It is quite impossible to assign a dollar value to a day of fishing but we do know that at least \$60,000,000 is spent in fresh-water angling in Pennsylvania each year. What is more important is the hour, the afternoon, or the day spent on a trout stream. The outdoor recreation business, including tourism, is estimated to be worth about \$1.3 billion a year in Pennsylvania. Yet we might ask just what is the value of any outdoor recreation or riding from here to there.

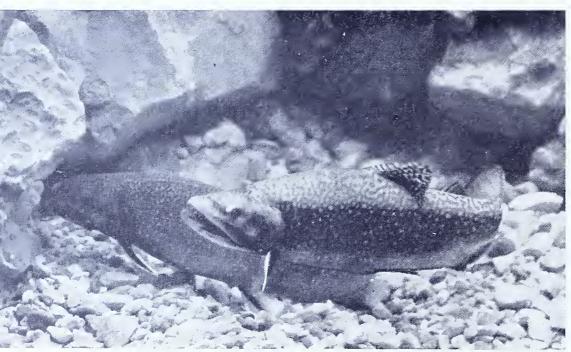
It is regrettable that it becomes necessary for any one person or group to have to defend the preservation of a natural resource as important as Big Fishing Creek.

We are girding ourselves to spend millions on Project 70 to create in other places what already exists on Big Fishing Creek. We are spending billions to build a highway, presumably to deliver people from the rapidly forming Megopolis of the Eastern Seaboard to the interior of our Commonwealth to enjoy the outdoor recreation there and, of course, to spend their money. Our land-planning and land-use commissions, boards, conservation districts, and others are spending much time and energy hunting ways to make our natural resources pay off. It is unbelievable that we should be so shortsighted, so blind to the simple facts staring us in the face, so ignorant of this tremendous resource already built for us by nature at no cost to us that we would consider building a highway through the middle of it.

What can we do about it?

Write, go see your Pennsylvania legislator and tell him what you think. Write to Governor Scranton and the Secretary of Highways for Pennsylvania. Write to John L. Stanton, Division Engineer, U. S. Bureau of Public Roads, 131 Walnut Street, Harrisburg, Pa., and tell him of your disapproval. Write to Dr. Edward Krafts, Director, Bureau of Outdoor Recreation, Washington 25, D. C., and ask him to support our efforts to save Big Fishing Creek and its recreational potential.

Spawning of Brook Trout



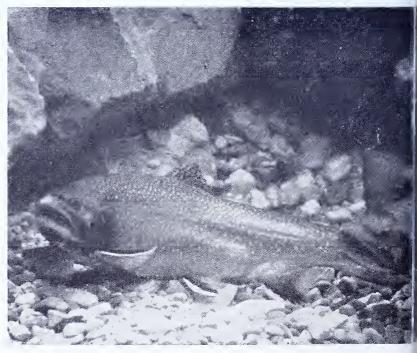
EARLY COURTSHIP . . . the male and female swim in a circular motion over the gravel bed with the male contacting the body of the female.



MALE contacting the during early courtshi



ANOTHER BODY must be of the female during nest-building operations.

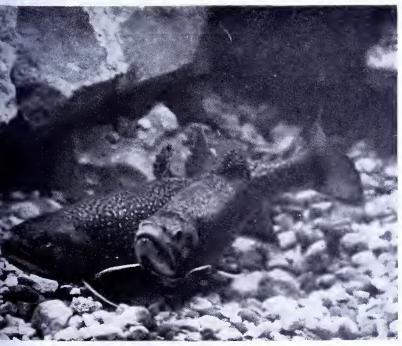


HEAVILY-LADEN abdominal region of the felis very noticeable prior to actual spawning.





FEMALE EXCAVATING the nest or redd . . . note the body vibration of female.



ACTUAL SPAWNING position brook trout.



FEMALE COVERS NEST after spawning is completed.

Boating



The Right Pitch

By WAYNE HEYMAN

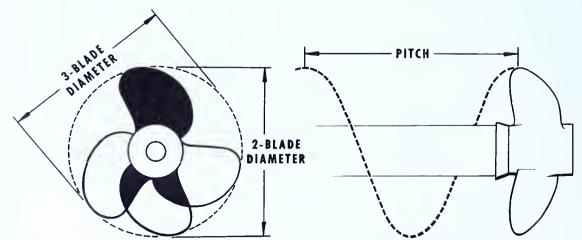
A sight that is becoming more common each season is the high-powered runabout struggling along at a maximum of 12 mph. Is the cause due to a slipping clutch? A broken drive shaft? Or is it simply the fault of a shear pin broken? Although each of these three sources of trouble, including wrong type fuel, can cause immediate loss of power, the major culprit in most cases is the propeller.

It is doubtful if one, out of several thousand boat owners picked at random, could give a detailed description of a propeller's function. This difficulty to fully comprehend an engine's prop can be traced to the fact that the blades are subjected to such whims and vagaries that not one manufacturer, in the entire history of boating, has managed to devise either a formula or a propeller that will guarantee perfect all-round engine performance. Yet they have contributed enough plainto-follow rules so as to enable even the greenest beginner a chance to reap near perfect cruising on the first outing.

To gain a better insight of some troubles faced by an outboard manufacturer seeking the best prop for your boat, we must compare the propeller with the wheels of an automobile. A car manufacturer knows the "dry" weight of his product and can, with clear cut mathematical formulas, determine what maximum speed will be attained in each gear with tires of a particular size. Added weight of passengers is of little importance since a car's horsepower is many times that of an outboard.

The outboard manufacturer is defeated from the start First he must guess at the weight of your boat, its design, the number of passengers you might decide to carry, and the over-all work load that might be required of his engine. At a loss for any better method, he has no choice but to equip his engine with a propeller that will function well with an average boat operating with an average load under average conditions. In the enche is only able to supply you with a blade that will do its work well under ideal conditions.

Although this type of manufacturer's philosophy might, on the surface, appear like some gigantic fraud the newly equipped boat owner is expected to do his share of figuring if he wants to enjoy carefree boating



MEASUREMENTS OF PROPELLER'S diameter is the circle scribed by the tips of the blade. Pitch is the distance the propeller would advance in one revolution if operating in a semi-solid substance, with no slippage.

The search for the "right propeller" has been made easier by one of the leaders in the outboard field, the Kiekhaefer Corporation, who markets their product under the brand name Mercury. Here the outboard buyer has most of his problems eliminated by a handy catalog that lists an entire line of Quicksilver propellers. One section offers boaters from two to ten blades for each motor from 10 hp and up. The higher horsepower motors are sold without props, so the new owner can select from a large range to suit his particular needs. For example, the 70-hp Mark 78 has ten different wheels, the 60-hp Mark 75 has eight, and the 45-hp Mark 58 has ten. This last model gives the boat owner the choice of using a 14-inch, two-bladed prop for light loads with speeds up to 43 mph, or an eight-inch pitch, three-bladed propeller for pulling up to 4,000 lbs. on a large cruiser.

A large number of outboard owners are under the impression that an engine's propellers function much like that of a screw moving through wood. This is to be expected since a prop's circular movements do give this suggestion, however erroneously it is. If this were true though, then the over-all dimensions of any type prop would contribute zero to its efficiency since the pitch of the blades alone, like the number of threads per inch on a screw's shank, would govern the distance advanced by the boat for every revolution of the propeller.

What actually occurs is the revolving propeller imparts a backward motion to the water flowing through the blades. This reverse thrust of water created by the prop's motion is in turn so resisted by the surrounding, relatively undisturbed water, that it exerts a forward motion on the boat. A jet of water or air, forced under pressure through the stern of the boat would create the same reaction brought about by the revolving propeller blades. When in motion, the propeller actually pulls the water from the leading edges of its blades, draws it back, and turns it into a high-powered "jet" stream.

It can be readily seen the diameter of the propused, its pitch, the number of blades it contains, and its revolutions per minute, *all* determine at just what proportion the water is accelerated through the blades and at what speed.

Diameter and pitch are the two main factors to bear in mind when selecting a propeller. Pitch is the axial distance that a propeller would advance in one revolution if operated in a semi-solid substance where there was no slippage. If you were to take a prop having 8" pitch and screw it into a large chunk of foam rubber, it would, in one turn, enter the rubber 8". Diameter is the circle scribed by the tips of the blades.

A wheel marked $8\frac{1}{2}$ " x $11\frac{1}{2}$ " means that the first figure is the diameter and the pitch is $11\frac{1}{2}$ inches. Other information will also be included such as the recommended safe operating RPM (5,500-5,800) for that type propeller, its maximum gross work load (800-1,300 lbs.) and the length of boat it performs best on $(15\frac{1}{2}-16\frac{1}{2})$.



A RACING PROPELLER is a light, two-blade, high-pitch wheel designed to spin a fragile racing boat around at fantastic speed. Place it on an ordinary runabout and what happens? No speed—too much load.

A final consideration that must be taken into account is blade area. The prop's blades should have sufficient enough area, when placed on your type engine, to perform efficiently on the water that is drawn through them. Performance will be disrupted, despite proper diameter and pitch, if the blade area is too great. As one blade sets the "water thrust" into motion the other blade, or blades of the prop, will interfere seriously with water acceleration. Too small of a blade area and the trouble is just as bad.

The speed performance of every boat is governed mainly by the horsepower available. Equipping your engine with the correct propeller will allow it to turn at the recommended RPM and develop full power. To insure this "matching" first select a recommended trial prop that is suited for both your boat's approximate length and its gross load. If the wheel is purchased from a reliable marine dealer, the chances are you received the correct choice. Once fitted-out though, make several tests for the best motor angle, using the tilt pin setting located on the stern bracket.

Now make a trial run and observe boat speed with water speedometer. The correct propeller has been selected if speed attained falls within the required "speed range" recommended for this propeller. If the trial run speed is *lower* than specified for the prop or is at the low end of the range, the next lower pitch is the correct propeller. If the speed is *higher*, then the next higher pitch is the correct propeller.

One rule to follow when selecting a propeller is that wheel with greater pitch should be used on lighter boats, handling lighter loads, and planing type boats. On heavier boats, with heavy loads, and non-planing types, a propeller with lower pitch is usually more efficient. The prop's pitch can be compared to the transmission in an automobile. Under load, a lower gear is necessary (lower pitch). Under light load, high gear can be used (greater pitch).

Sometimes It Helps to Think

THERE have been times in my fishing career that I have felt that all mysteries have been solved; I have the situation well in hand. Perhaps I have struggled for years in search of THE method, but now I have it and all the hours of frustration are past. Baloney!

Time was that I would never dream of insulting a trout's instincts by showing him an off-pattern fly. Give me a box full of Quill Gordon's, Cahills, and Ginger Quills and I could catch more than my share. Last season, I took an amazing number of supposedly smart brown trout on a No. 12 Fore-and-Aft Coachman, a fly that resembles, in good part, a remnant of carpet sweeper lint. The first fish was accidental—I had exhausted my imagination on an absolutely impossible hatch of flies and tied this THING on for lack of a better idea. The succeeding fish came as a result of sheer stubbornness on my part, a refusal to recognize the obvious

When I started fishing for trout, Dad taught me a fair amount about streamer fly use. When did you use one last? I broke down two years ago and swept a riffle clean of browns and rainbows on a No. 10 white marabou streamer, this dredged from the very bottom of my wet fly kit.

Three years back, I went to Angustura Lake, an amazing body of water in Sonora State, Mexico. There, legend held, a man could fill the boat with black bass (largemouth) in short order. A small one was held to be anything less than six pounds.

With me on this junket, I had a supply of livestock. In a live bucket in the plane (I baby-sat the bloody thing all the way down from Texas) was at least a year's supply of waterdogs, the large fresh-water salamander. Bass adore them and while their appearance is horrendous, their effect is supposed to be akin to cataclysmic. So it said there in fine print. I slung waterdogs on medium weight spinning gear until my arm grew weary and took one bass of about three pounds in three days. Then I looked through my tackle kit. In the bottom was one of the artificial rubber worms with a casting head. I had received it in the mail just before leaving on this trip and slung it in the box without another thought.

I fished that worm for two more days before it was forcibly removed from me by a bass far larger than I like to ponder about. By then, it was tattered and worn from constant exposure to irate bass who kept chomping it in their jaws with carefree abandon. I caught fish galore until I lost it. Then, I went home.

I had a man whose writings we all have read in the major outdoor publications tell me in good faith that he would never be caught DEAD fishing with a nymph

By RICHARD ALDEN KNIGHT

—better use worms than that. He catches fish today, still innocent of the fact that a nymph, properly fished and placed, is the deadliest, toughest method of trout fishing ever devised.

When we stop and ponder on our reasons for going fishing, we can devise some wondrous fables. It helps us relax, takes us away from the cares of the world and makes new men of us all. It allows us to share in nature's bounty and observe wildlife in its natural state. We lyricize on the beauty and the splendor of a spring day or a summer sunset, but one thing remains irrefutable—WE LIKE TO CATCH FISH! Let one day of all this pastoral contentment pass without a strike and the whole trip turns into a bust. No one paints a prettier picture than a successful angler. It short, we haven't varied through the eons much from our forebears who used to clobber prehistoric species with a flint spear to survive.

In this business of being an outdoor editor, writer columnist and soothsayer of sorts, I have been asked some truly amazing questions. Two from a youngster of five, back to back, still rank in my favorite list of unanswerables—"Why is a fox?" and "How deep is the boat?" But in that column of questions I car answer, praises be, comes one from my favorite editor and yours, George Forrest of the PENNSYLVANIA ANGLER. George went right to the heart of the matter. "Tell our readers how they can catch more trouduring the hours they spend on the streams in our state." Let's take a look at this in depth.

Trout fishing, when it is boiled right down to the base metal, is nothing more than a sequence of applied methods. If you use the right method or its subspecies, you succeed when others fail. I will assume you are a fly-fisherman, I haven't the space to handle spinning here. So, if we are to deal with base metals let's take number one, the rod.

Fish With Balanced Tackle

I know personally five people who can cast a fly 100 feet—that's all. I have heard many an angler tell o long casts, but when the measurement device come out, these hundred-footers shrink to their proper 60 odd feet. It's not a particle important, so forget it Learn to cast with deadly accuracy, under all conditions, so that you can hit Momma's dinner plate at 3 feet 8 out of 10 tries and you will catch trout galore.

Balanced tackle, that lovely counterbalance of rod, eel and line that makes casting an effortless pleasure, s not all that hard to come by. First, a simple formula—your reel (fully loaded) should weigh 1½ more han your rod. If you use a four-ounce rod, your reel nd line should weigh six ounces—no more, no less.

Your line should be double taper, not triple taper nd not level. The average four-ounce trout stick will ake an HEH line nicely. Some require an HDH, but tot many. How do you find out? You load up the reel of your choice and you cast with it! Does it fit? Fine! Now cut off all but 22 inches of the forward taper (the H part, not the E) and you will have a line that will turn over" when you throw a cast.

Vear Wading Equipment That Fits the Water

I had, at last count, six separate sets of waders and one set of wading stockings. I do not own a set of hip poots—I'd sooner wear roller skates in a trout stream. All right, maybe I have too many pairs, but making a iving in a trade does demand equipment. I'll bet Mickey Mantle has more than one fielder's glove.

It makes little sense to venture forth on BIG Pine Creek in wading stockings or hip boots. Makes about a much sense to go fish Cedar Run in chest-high vaders. Like hunting mice with an elephant gun, you an overdo a thing.

Waders are the answer to reaching fish and water ou never have been able to cast into before. They are also the answer to a regular bath if you get a bit gay n them. But before you sally forth and buy all manner of wading gear, keep a few good things in mind.

- (1) Get a pair that has PLENTY of leg, crotch and leat room. Now, you'll be able to crawl under fences in them and step off high banks.
- (2) Avoid as if a plague these creations called bootioot waders. For one thing, they wind up as nothing nore than high hip boots and are every bit as uncomfortable. Secondly, they always wind up leaking where the boot foot joins the wader.



- (3) Buy a set of stocking foot waders with a foot big enough to hold you, a light pair of socks and a heavy pair of over socks.
- (4) Now, buy a set of wading shoes, those big enough to hold all the above mentioned plus a heavy set of wading stockings. Buy felt if you must, but hobnailed leathers are SO MUCH better.

One more thing before we pass on—learn to wade! Always stay loose in the water, with your knees slightly flexed. Never move one foot until you have the other one firmly anchored on the bottom. Follow these simple rules and you should stay moderately dry this season.

Now, let's deal with the obvious.

Methods and When to Use Them

(1) Dry Fly

You fish a dry fly when you see insects in the air or on the water. You also fish dry fly when your best friend is watching, when a car is observing you from the road or when you haven't much else better to do. However pretty this method is, it does catch fish if used correctly. Here are a few side benefits.

(a) Skittering—

I use this when I have seen fish moving to a hatch I cannot identify to save myself. Take off the 5X tippet and cut back to 3X. Tie on a bushy No. 10 or No. 12 fly; a spider, a variant, a palmer-tied pattern, even a buzz fly will work. Fish this quartering downstream from you, casting across the feeding lane and just as the fly starts to "drag," twitching it in short skitters across the surface. When a fish takes it, he will assassinate it with all the delicacy of a 10-ton truck, so keep your tip moderately high to cushion the shock.

(b) Drop-drifting-

Don't try to wade into position for every fish you cast a dry fly at—you'll wear yourself out. If he rises below you, lengthen line and cast over him in the air. When you have him measured and ten feet to boot, throw a cast that you stop about six feet this side of him. Let it drift over him and then, as your line straightens, give him the final bit—skitter it back up over him. Man, it's like downtown when they strike!

(c) Drowning a fly-

When is a dry fly a wet fly? When you get careless, that's when. The next time you see a fish feeding on drifting drowned flies (the rise is a bulge under the surface with a boil rather than a splash), twitch your fly under the surface and let it drift dead over him. It works!

(2) Wet Fly

There is one awful lot of water in a trout stream that does not hold trout. Why fish it? The next time you sally forth with wet fly in hand, try selective spot fishing. Here's what to do.

Take a look at the stretch you are going to fish. In it you will see three or four obvious hidey-holes for trout. Take each one of these as a separate thing. Wade into the water until you are directly ABOVE the spot you have picked out. Stay at least 25 feet away from it so that you won't scare the poor trout in residence out of his wits.

Cast directly upstream from you—that's right, UP-STREAM! Let the cast drift down by you, sinking as it goes, so that by the time it arrives at THE SPOT, it will be on the bottom. Now, raise your rod tip and lift the flies in several, decisive 18" lifts, right up smack past his trouty nose. He'll take it, believe me!

(3) Nymphs

The same would apply to nymph fishing. I like a nymph deep and positive below me. I like to know that the bug is coming off the bottom like all good bugs do and that the first sight Junior has of it is right on his dinner plate. If I do raise him, and he comes short, I do this. Cast the same way and let the nymph swing down past him absolutely dead. Just as it passes him, lift and start it for the surface. If he doesn't take it then, go find another fish!

Now-When to Go Fishing

Over the past 35 years, the Knights, first Dad and now me, have been perfecting a series of times known to the public as the Solunar Tables. We can tell you, and here seriously, when to expect fish and game to be on the prod and ready to take your lure. We have spent more hours than I like to look back on perfecting this table and today we can state that we have it done to a point where we can say that you will average out in the 90 per cent bracket as far as their accuracy is concerned. Far from being a license to steal, the SOLUNAR TABLES are published in 7 foreign languages in 11 foreign editions as well as being syndicated on the sports pages of 141 newspapers in the United States.

That's about all I can answer today, Mr. Editor. I hope that your readers leave me a few fish this season!

TWO ALL-SEASON NYMPHS

By STUART DUFFIELD

Here are two flies that will put fish in your creel from opening day until the finale of trout season. In fact, if you fish only these two you could come up with a pretty good year. For one thing you will not be wasting valuable time changing flies. Your lure will be in the water and, as we all know, that is where the fish are caught.

The first nymph which is an early season type is tied as such: Tail—Three bronze mallard fibers. Each fiber should be separated and lacquered. Separate the fibers after lacquering. This will prevent them from being glued together

Body—Brown mink-strip off the guard hairs and taper the body from the tail to the eye of the hook. Leave room behind the eye of the hook for the hackle and additional thread windings.

Wing Pad—Made from the same material as the tail. Cut off approximately 1/4" of material and lacquer and let set for ten minutes. Tie in the material with the dull side on top and extending to the rear of the hook. After hackling, pull the wing pad forward and tie off at the eye of the hook. By pulling the pad forward you will now have the glossy side up.

Hackle—Brown partridge. Only one turn.

Hook—Either No. 12 or No. 13 3X long shank.

Our other fly is the old favorite, the Light Cahill Nymph. Since the ginger flies appear later in the season this is a good representation of this class of fly.

The dressing would go as such:

Tail—Ginger hackle fibers, about five of them. Let them extend well beyond the bend of the hook.

Body—Cream fur from the red fox. Again strip off any guard hairs.

Wing Pad—Lemon wood duck flank feather. Tie the feather on parallel with the top of the hook. The butt of the feather will be tied right behind the eye of the hook. Next trim with scissors to produce diamond shape.

Hackle—One turn of ginger hackle. Use soft webby type of feather.

The first fly is the early season type and will probably produce when fished near the bottom of the stream. If you have a sinking line use it by all means. If you aren't so fortunate

you will have to add BB shots or lead wrap arounds. Tie them in above your leader's knots.

In casting throw your lure either directly upstream or quartered up and across stream. Since the streams are generally high in the spring the former method may not be practicable as your fly will sweep back to you in such a short span of time that it is virtually impossible to strip in the excess line and still maintain control of your lure. Keep your line taut at all times. If your line acts strangely or you feel a bump, lift your rod quickly in a strike. Nymphs are difficult to fish and strike signals hard to detect. So, if either of these conditions exist, assume a strike.

The Light Cahill Nymph can be fished nearer the surface with good success. As the season wears on the trout will forage greater distances and their range in terms of stream level will be from top to bottom.

If you fish shallow streams keep a good floating line on your rod. There is no need to sink your fly any great distance. You will pick up a lot of nymph activity in the surface film and just below the surface. In particular, you will find the turbulent, white water areas most productive of nymphal life.

Remember to use a good, quick-tapered leader. It should be no shorter than nine feet and as the going gets more difficult lengthen out as far as necessary and in keeping with comfortable casting. For early season work use leaders of 3X and 4X. Later, range through the 5X and 6X leaders. You will have to use your own judgment on leaders. As a rule go long and go fine. You may miss more this way but you will definitely pick up more strikes and correspondingly more fish.

Keep in mind that you, the angler, are the most important factor in successful nymph fishing. Approach your hot spots with caution. Be a careful wader. Don't disturb your pool with a long initial cast. Work in close first, gradually lengthening your casts.

Be mindful where your fly is in the water. It may be riding too high or too low. Experiment at different depths. The secret to successful fishing is to present your lure in a place and water level where the fish are feeding.

Being a successful nymph fisherman requires patience and keen observation. Many anglers feel that it is the ultimate in fly-fishing. Day in and day out there is no more productive method for taking trout. Take these two nymphs and put them in your fly box. When April rolls around and it is time to dust off the fishing gear take out these two flies and go to your favorite stream. You may be in for a big surprise.



How to Get the Best Action From Your Spinning Lures

By RAY OVINGTON

When lure manufacturers first began to demonstrate their products at the Sportsman Shows, lures were pulled around and around in circular tanks to illustrate their action. This was not only a good sales gimmick, but highly educational too, or the customer could see the colors and the type of lure, but nost important he could watch the lure go through its antics right before his eyes. By slowing down or speeding up the rotaion of the lures, he could note at just what point the action was best. Of course fishing conditions vary from one minute to the next and no set and fast rules can be laid down to fit all circumstances. This is one reason we have so many plugs and ures with so many different types of action, so this very fact argues against a sameness of retrieve when we put the lures to work on the fish. Many lures are so well designed that we should not interfere with the built-in attraction by varying our retrieve or jerking the lure during its course, yet others require we do just the opposite. Many are designed for deep running but in most cases, the speed required to put them down any distance makes them work too fast in the water, thereby cancelling out a great deal of their appealing action. It is sometimes better to weight them to begin with by additional lead well ahead on the leader.

About the only lure that relies solely on the angler's manipulation is the popping plug. It is designed to push the water or a water bubble ahead of it as it is retrieved. In order to make it attractive, we pull and snap it, let it rest and then make it live and moving. A straight retrieve you can see, gives it little action, but you'd be surprised how many anglers miss this point. I was bass fishing not long ago with a fellow who complains at his lack of luck with the popper on smallmouth bass. After seeing him retrieve the popper just once, I realized why. A little coaching that night changed his mind about poppers and he lugged home a bass that I wish I had been fortunate enough to snag.

There is only one way to get the most action and killing results from your spinning lures and that is to fish them at the correct speed. The speed that brings out the lust of the fish. We do not definitely know whether fish strike a lure from hunger, annoyance or any of a million combinations of both. We do know, however, that certain actions at times will bring a bass fifty feet to a lure . . . a trout from out of a cavernous hole under a falls or a big striper into the white water from the open sea. So, the boys who dream up the creations that catch us first at the tackle counter have first gone through a long, laborious process of trial and error with models of all

kinds, sizes and weights. They strive for a certain type action they hope will look enticing to the fish and when they arrive at the particular twist, dive or wobble, they then go into production. A few fish are taken by the inventor. Models are distributed to their friends and associates in the field. The lure takes fish and then comes the broadside of acclimations. You or I buy the lure . . . I fish it slow, maybe you fish it fast. Maybe neither of us catches a fish on it. Then one day we see an angler using the lure and murdering the fish. Why? Accident maybe, but when you begin to ask questions, watch others fish and see one angler taking fish while the man next to him, using the same lure is hitless after hours of trial, you begin to wonder.

Trouble is that most fresh-water anglers fish too fast. We seem to be in love with the tackle and its very smoothness encourages us to reel in quickly so that we can cast out again. I've found myself doing it and have stood and watched many an angler, not fishing, but just casting and reeling, giving little or no thought to the lure's action.

The Jitterbug plug is a case in point, for here as with any surface plug, the ruckus it causes on the water is obvious. Ever notice the speed of retrieve you use with this plug? How many times have you had fish strike short while using it? Did you know that the Jitterbug fished so that it barely wobbles can be the most killing of its many actions? Here is a plug that will take almost any game fish, black bass, striper, salmon, trout and even barracuda! But retrieve the Jitterbug fast and a great percentage of the action is lost, plus the fact that the fish has to really want it to go racing after it. Remember that surface plugs like this attract by the surface commotion, yet by the same token, this same disturbance can put down more fish than you might expect . . . simply because it is cast too often over a given area and retrieved too fast. This is a plug that you can't retrieve too slowly!

Take any of the metal underwater spoons and wobblers such as grace the tackle counters by the hundreds. Same rule applies here. Retrieve any one of them too fast and the attraction is lost to the fish. There is a very definite point in all of them when the action is at its best and the trout fisherman who fishes these lures across and downstream too fast is simply scaring the trout. After they see the lure whisk by them a few times they either become bored or scare down to a deep hiding place. Look at the spinner blade lure as you drag it through the water, when the blade is working too fast, it loses a great deal of its shimmer but when it lops over irregularly in a slow

retrieve, it gives forth lifelike sparkles. Certainly the spinning lures with the blades that revolve out from a shank should be fished as slow as possible, for when the blade spreads wide, the attraction is almost nil.

All this is not idle theory. I've tested retrieve speed on all types of game fish and watched their reactions to lures. You would be surprised how many times I have seen them run from, rather than to, a lure fished too fast. That same lure worked slower would bring them back out again and eventually produce a strike. Another point in favor of the slow retrieve is that you are bound to cast less over a given area, thereby working the water to the best possible advantage.

This attention to speed of retrieve is the secret of success with streamer flies and I know one streamer expert who pays little or no care to the color or even the shape and length of his flies. He puts his faith in their action alone and can take fish right from under your nose. It took me years to learn his secret and this is it. He studies the water, the holding spots therein, the snags, the shelving riffles. He plans his cast, working the fly fast in certain spots, slower in others and varies the action of the fly where it is needed. He can pull trout this way, regardless of pattern.

In streamer fishing with the spinning rod, weighted streamers are necessary or if your lures are not, the line will have to be, if you are planning to cast any distance. In the case of weighted streamers, evenly weighted the length of the shank, a great part of the motion must be put there by manipulation of the rod tip. The fly itself is very dead and so you must put the life into it and do this with the same techniques used by the fly-fishermen . . . jerk the rod tip up and down, which will cause the fly to rise and fall. Additional action can be gained by hauling the line, or stripping it in as is done in fly-fishing. The spinning rod, being shorter than most fly rods isn't quite as sensitive, so any action you give has to be quite hard in order for it to register. This is one reason why so many anglers pooh-pooh the weighted streamer in spinning for trout especially.

For salt-water species you don't have to be so particular. The best weighted streamer of course is one that is weighted in the head, or immediately ahead of the fly, for this helps you to bob the fly up and down in the current. Weight placed a foot or so ahead of the fly is used when the current is swift, for the fly then has the chance to wobble free in the current and this action in itself is usually enough to bring a rise.

In all cases of fishing shallow water, use a light weight lure or fly rather than retrieve too fast in order to clear the rocks. A fast retrieve is always less effective. Prove this any time by holding a Colorado spinner in the current, dropping it down occasionally and then bringing it back. After it has been there a little while the fish will come. Had you simply drawn it across the water a couple of times you might not have connected. The slow retrieve is also very effective over hard fished waters where the fish are constantly being put down by the speed boys.

Study that action of your lure and to do this, let out about ten feet of line and submerge the rod tip so that the line is not at an angle. Now, you will see the lure at work. Pull it up, let it fall, varying the pressure and speed until you see it act its stuff. Now you know its appeals and it is up to you to stick with them. Lure colors, action variances, weights and the waters they are fished in are important, but speed is the cue to the best the maker can put into them.

Lure action in salt-water angling is of another horse altogether. Here your conditions are almost entirely reversed to that of most fresh-water situations. The game fish you seek like the mackerel, striped bass, bluefish and weakfish are school fish that come in from the deep to feed on the bait schools.



LITTLE SANDY creek in Venango County at worm fishing time. In clear water worm-fishing, control the bait as carefully as you do an artificial fly.

The only way to attract them is to present your lure near the fringe of the bait school, making it dart quickly to send off its attractor flashes. Once one fish goes for the lure, there are others not far behind. Feeding is competitive in their society and when several fish start for a lure the fastest and the biggest usually wins out. This is the reason for the great popularity of artificial lurc fishing for game fish. You cast out and make that lure move fast, if it is a surface plug, popping it vigorously and then skipping it across the water. If it is an underwater plug or spoon, vary the retrieve from a fast pull to a sudden but short stop, then speed it on its way again. Remember that these game fish use their noses following a chum slick or the wasted blood of mashed up bait. Your lure has no fish or blood smell, so it must make up for this lack, in action. Many of our bucktail and streamer fly patterns and specially the maribous in the larger sizes are great producers weighted. Make 'em live and move and change lures constantly while working a school, for you'll find that the fish will soon tire of the same lure and though it might have attracted them once, they soon pass by when they find it to be a fraud. The two typical exceptions to these generalities about salt-water lure action are found in bone fishing over the flats and barracuda fishing, when these latter are basking in the shallows or along a beach.

The approach must be as careful as that used when trout fishing, for the fish are "out in the open" with no shade or deep water to run to in case of fright. The lure should never be cast directly to them or over them, but rather well ahead of their resting position or well ahead of their path of movement. In the case of bonefish particularly, the lure is left motionless and at most moved but a little. The smaller barracuda, brave as he is, can be scared off by too vigorous a retrieve, yet can be attracted to the lure like nails to a magnet when it is popped a bit, then rested to be popped again. They make no bones about it when they are interested. Just one long javelin-like strike and they've got the bait in their toothy maws. Their battle in shallow water is really something that will raise the hair on the back of your neck.

Worms for Early Bird Trout

By N. R. CASILLO

Can you think of anything more enticing for the early bird rout than a nicely presented angleworm? When streams are running high and muddy, trout are on the lookout for worms is well as aquatic forms which have been dislodged by the reavy current. The fish are poised in shallow currents between and in back of rocks or at the edge of eddies waiting for some what may. Why disappoint them?

Art Alexander is one of the most fanatical fly-fishermen that know of, but he will use worms when conditions warrant it. Some of my precious memories include boyhood sessions with a worm baited hook on a slack line as it tumbled through the iffles, paused in an eddy or sank in quiet water at the head of a pool. However, seldom did it get beyond the riffles. Usually here would be an arrowy flash from back of a rock and a prookie would nail it. The thrill of that moment has diminished but little.

On the morning of an opening day on Little Sandy Creek in Venango County a brief but torrential rain changed what was a crystalline stream into a muddy mess. "We'll have to wait it out," grumbled Art as he dumped his duffle at streamside and rulled out his pipe.

"Go ahead and wait," I remarked, "but I'm giving it a whirl right here," I added, nodding toward a nearby eddy.

"You've got worms?" he inquired with a hint of suspicion.

"I sure have," I grinned as I pulled a neat, well ventilated in from my creel. "Enough worms for both of us."

We assembled our outfits while my companion still grumbled bout what I presumed were the stream conditions. Then, he picked up his tackle and announced that he was taking a turn upstream.

"Don't you want some worms?"

"Don't need 'em," came his laconic reply as he strode off.

Even before my taciturn companion was out of sight in a hicket of alders I had a trout, a nice eleven-inch brown. I turbed the urge to yell my success. I'd show him a real catch when we got together for lunch.

The water was loaded with mud, a brown silty mud, its very iltiness undoubtedly responsible for Little Sandy's reputation is a fast clearing stream. However, like hundreds of other rout streams throughout the state it will yield trout during the irst hour or two of its murkiness; the trout feeding avidly on he rich fare swept downstream before they retired to areas nore to their liking.

The eddy I fished was small and located at the very edge of vhat are normally shallow riffles. Now, the latter were all but flaced by the sullen flood. The eddy, an aquatic whirling lervish at normal levels, had slowed down to a sluggish but nexorably powerful pace.

The trout were feeding all along the banks, gathering up the asty and abundant foods which they had been denied for so ong. I stood some fifteen feet above the eddy and permitted the vorm to work its way down along the fairly featureless bank.

If a fish took it before it was sucked into the eddy I would feel that familiar tug-tug. The hook was not set until I had slowly counted to three. Then, with an upward snap of the wrist 1'd let him have it. If the worm didn't connect as it tumbled downstream it seldom failed to get a fishy reception when it reached the eddy. Invariably the fish would seize the bait and dart across the powerful current to settle behind a protective rock in the riffles. In that short dash they nearly always hooked themselves.

My outfit was simplicity itself. I used a regular 8½-foot bamboo trout rod with a fairly stiff action. The reel was regulation holding a bait casting line. Usually, I switched an eleven-pound test line which I have used for a season or so from my multiplying job to the single action windlass. The line's pliability makes it easy to control the bait, the worm moving as naturally as though it had no strings attached to it. Frankly, the action of the bait seems to matter little to the early season trout. Their objective is food and they don't look a gift horse in the mouth.

Most trout fishermen have their own preferences for sizes and types of hooks. The size of a hook depends largely on how you bait it. If you string your worm in tight little loops you will probably choose a number 1 or 1/0. The same sizes are suitable for a loosely looped worm. Just make certain that there is plenty of room between the point and the shank. Some prefer snelled hooks attached directly to the line and then there are those who invariably use a short leader, say, around three feet or less. Try baiting your hook as follows: select a medium size garden worm and string it right up through its middle without loops, of course, leaving about a quarter of its length hanging from the end of the hook. Hooks with barbed shanks are ideally suited for this. Try this method and be surprised.

Many fishermen like to use the three-hook gang on which to string the worm. When using it strike as soon as the fish hits. Singularly, I've had but little luck with the soft, plastic worms in murky water, it being quite obvious that the sense of smell plays some part in locating the bait.

Using worms, both the real thing and the artificial, in clear water streams later in the year is considered an art. The important thing in clear water worm-fishing as in fly-fishing is to have absolute control of your line. There is nothing leisurely about a striking fish in clear water. As a rule it will streak out of a hiding place and take a swipe at the bait. If you are on the ball your chances of hooking it are good. It is essential to reach out as far as you can with both rod and line. Obviously, you can't cast the worm as you do a fly, but an 8½-foot rod combined with as much line plus the length of your casting arm will put out your bait a respectful distance. This, of course, with an underhand swing. Keep well back and hidden if possible. In fact, some consider it better technique to make a short cast and let the current do most of the carrying.

On that particular opener on the Little Sandy when I quit fishing at approximately noon, I had hooked and landed ten legal fish of which I kept four, all brownies from nine to eleven inches. By the time I had a brisk fire under the coffee pot my companion appeared on the scene.

His greeting? After he squirted a long streak of tobacco juice to add to the stream's already heavy burden, he asked. "Well, how ju do?"

"Four browns. And you?"

"Four browns—but, look at this one." This, as he extracted a beautiful 16-incher from his creel.

I turned to get a better look. "On what?"

"I had these with me all the time," he grinned, pulling a tin tobacco can from a pocket of his fishing jacket.

Dr. Albert S. Hazzard Retires

Dr. Albert S. Hazzard, Assistant Executive Director of the Pennsylvania Fish Commission, has retired effective April 1, 1963. Since his appointment on December 1, 1955, Dr. Hazzard has directed the Commission's land and water management activities including the biological services, fish rearing, distribution and engineering construction and maintenance. He led the research that resulted in the vigorous stream and lake improvement work in Pennsylvania.

In the Commission program he helped organize and develop the regional fish management program; represented the Commission in developing plans with the U. S. Soil Conservation Service for multi-purpose lakes under Public Law 566. Dr. Hazzard served on the advisory committee of the International Great Lakes Fishery Commission and acted as advisor on fisheries from Pennsylvania for the Great Lakes Commission. He served on a staff headed by Dr. Maurice Goddard, Secretary, Pennsylvania Department of Forests and Waters during the development of the Delaware River Basin Comprehensive Survey. He also represented the Fish Commission on various conservation committees with the state and nationally.

Before coming to Pennsylvania and while here, Dr. Hazzard has been active in promoting public trout fishing for sport often referred to throughout the world as the "Fish-for-Fun" project. He believed that reducing the kill through higher size limits and restrictions to artificial lures was the most effective way to better trout fishing. He was a strong advocate of stream improvement and was convinced that warm-water fishermen could best be served via the control of pollution, soil conservation, securing public access to fishing waters and building fishing lakes rather than by any state-wide program of fish stocking.

Born in Buchanan, N. Y., on July 30, 1901, Hazzard was graduated from high school in Hancock, N. Y., took his A.B. degree with honors at Cornell University in 1921, and obtained his Ph.D. degree at Cornell in 1º31. He was an instructor in zoology at Cornell from 12- mili 1931. He was a member and leader of the of the biological survey of the New York Pepartment, 1926-1930. He was employed matic biologist by the U.S. Bureau of U. S. Fish and Wildlife Service, investigations in the western inter 931-1935. In addition to directing the disheries Research, he served as a reseam Thology in the University of Michigan = Resources, and as a private consultant rs. In the latter capacity



DR. ALBERT S. HAZZARD

he served the Izaak Walton League of America in a study in the Adirondacks, and as a special consultant to the Wildlife Resources Board of the State of California.

Dr. Hazzard is the author of 70 technical and popular articles relating to fresh-water sports fisheries, is a member of the American Fisheries Society, one of the oldest scientific organizations in the country, served as its president in 1950-1951. While in Michigan he was active in the Science Research Club of the University of Michigan and the president of the club in 1955. He is also a member of the International Association of Fish, Game and Conservation Commission. He is a member of Sigma Xi and Gamma Alpha honorary scientific fraternities. He was a member of the Harrisburg Torch Club and was president of the club in 1961-62.

Dr. Hazzard married the former Florence Woolsey of Hancock, N. Y., and they have five children. He and Mrs. Hazzard plan to enjoy their retirement on a farm near Hancock, N. Y. Several trout streams on the farm will, no doubt, receive the undivided attention of a fine scholar, gentleman and fisherman.

Retiring Fish Commission Employes



STANLEY J. FIEDLER

Stanley J. Fiedler was appointed to the Propagation Division of the Pennsylvania Fish Commission on March 1, 1957, as a Fish Culturist Assistant. He was born February 16, 1898, at Woodward, Centre County, and was educated in public schools in that vicinity. He is married to the former Dorthea Witney and they have six children. Mr. Fiedler plans to hunt and fish after retirement.



LEO J. McCABE

Leo J. McCabe, who was employed April 1, 1924, on an hourly basis until his appointment June 10, 1957, has served as a Special Fish Warden, laborer and equipment operator over his many years with the Fish Commission. He was born on January 5, 1900, and was educated in Pleasant Mount schools. Mr. McCabe is single and will reside at Pleasant Mount, Wayne County. His hobbies of hunting, fishing, working at odd jobs around home and traveling will keep him active.

Curtis Simes Resigns



CURTIS SIMES

Mr. Simes was born on December 23, 1923, in Christiana, Lancaster County, Pa. On May 1, 1956, he ecame associated with the Pennsylvania Fish Com-

mission, assigned to the Division of Fishery Management.

He is a graduate of the Christiana High School and the Scott Senior High at Coatesville, where he pursued a college preparatory course. Following his discharge from the Army Air Force in 1946, Simes was associated with the U. S. Fish and Wildlife Service in Boston, Mass. In 1953 he was a unit leader in fishery management for the Conservation Commission of West Virginia, stationed in Charlestown, W. Va.

A graduate of the Pennsylvania State College, he also studied fish management at Oregon State College, Corvallis, Ore.

On April 16, 1956, Mr. Simes was appointed fishery manager for the South Central Region of the Pennsylvania Fish Commission, with offices at 201 Ridge Road, Huntingdon, Pa.

Mr. Simes resigned his position with the Fish Commission on February 28, 1963, to accept a position in private industry.

Ross Leffler Elected National Wildlife Federation President

Ross L. Leffler of New Florence, Pa., Assistant Secretary of the Interior for Fish and Wildlife in the Eisenhower Administration, was elected president of the National Wildlife Federation, at the organization's annual meeting.

Mr. Leffler, a Federation regional director since 1961, succeeds Dr. Paul A. Herbert of East Lansing, Mich., who had served as head of the Federation—the world's largest conservation organization—since his election in March 1961.

Lehigh Club Gets New Membership Chairman

The long search for a qualified membership chairman by the Lehigh County Fish and Game Protective Assoc., Inc., is at an end. The club has secured the services of long-time member and writer Al Lobach who has more than 20 years' experience as a writer. Lobach is presently a Deputy Game Protector and has served as Game. Committee chairman for the club. The group also named Roy Lerch of Coopersburg to the Executive committee to fill out Bill Moyer's term.



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STREAM NOTES

Two additional fish rearing cooperatives were added to Elk County during the past fall, bringing the number to four, as follows: Hi-La Sportsmen's Club, St. Marys Sportsmen's Club, Bennetts Valley High School Outdoor Club and the Elk County Anglers Club of Ridgway. The Elk County Anglers Club received 4,000 sub-legal brown trout from the Fish Commission to be reared at the United Natural Gas Company's Island Run pumping station. The boys at the station developed a "feed-mix" in the following manner: Take fish pellets, add hot water, drain off the water, then make a mash compound adding ground venison, mix well, then feed to the trout. I watched this process, the feeding and was amazed to see the fish fight for the "mixer." These fish were in very good condition. With the two new cooperatives in operation, a total of 20,000 brook, brown and rainbow trout will be raised by the four clubs to be released in the open fishing waters of Elk County this year.-District Warden Bernard D. Ambrose (Elk).

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In March 1961, Edward Gray, Meadville, caught an 8-inch walleye in French Creek at the mouth of Conneaut Marsh. Gray tagged the fish and released it. In November 1962 this fish was caught about three miles upstream by a lady angler from Meadville. She reported the fish was $15\frac{1}{2}$ inches long.—District Warden Raymond Hoover (Crawford).

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While making an investigation with Deputy Kirby on January 13, we saw a flock of about 200 robins in a heavily wooded area. Spring's on the way!—District Warden J. Richard Abplanalp (Mercer-Lawrence).

#

Chapman Dam in Warren County has become a popular place for winter ice fishing. During January many nice trout were caught through the ice, mostly brook trout, 10 to 12 inches in size. A nice rainbow, in the 17-inch class, was reported caught there.—District Warden Kenneth G. Corey (Warren).

#

A bait stand at the foot of State Street, Erie, Pa., sponsors a contest for the largest perch caught through the ice. The biggest last to be reported was a 1434-inch yellow perch weighing one pound, thirteen ounces taken by John Kalbfleisch at Eaton Reservoir near North East.—District Warden Norman E. Ely (Erie).

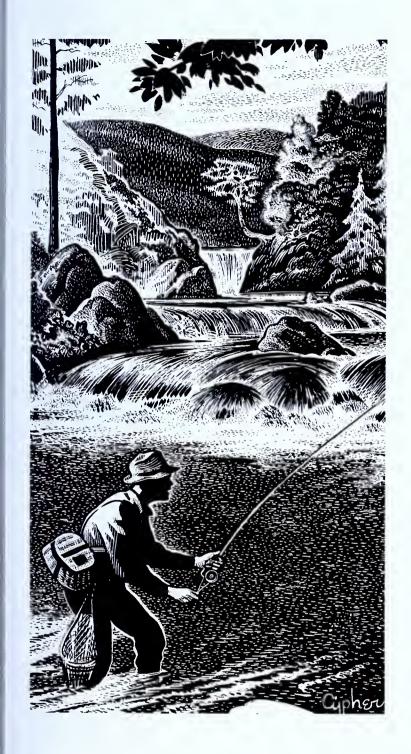
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Deputy Game Protector Perry Heath and I checked four ice fishermen at frozen Quaker Lake, Susquehanna County. They were seated around a card table playing cards while waiting for a bite. Using a cold deck, no doubt!—District Warden Walter G. Lazusky (Lackawanna).

#

I recently checked a man by the name of Bickauskas from Scranton while ice fishing at Chapman Lake (Lackawanna). He belongs to a Scranton fishing club and the members of this group enter fish caught in New York State as well as those taken from this area. A prize is given for the largest fish caught of each species. Bickauskas won the smallmouth bass prize in 1961 with an 18½-inch bass and took the 1962 contest with a 16¾-inch bass both caught in Chapman Lake.—District Warden Walter G. Lazusky (Lackawanna).

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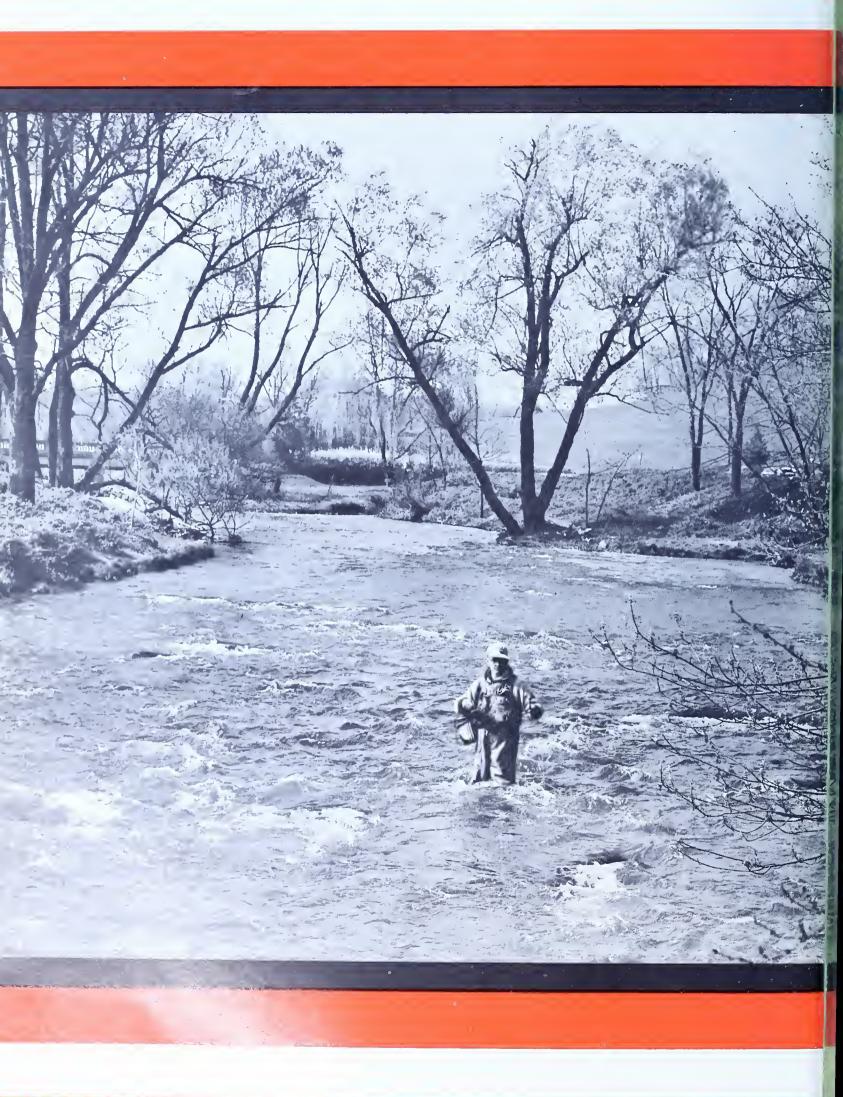
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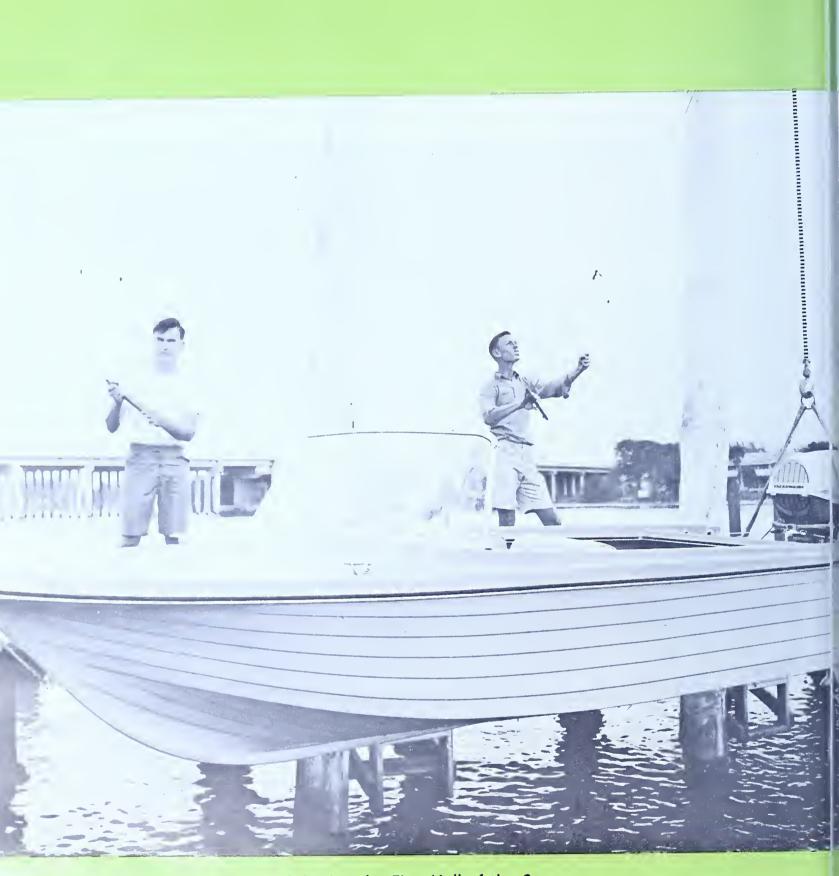


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. D.	1, Spring Mills, Pa.,
	Phone: Center Hall Empire 4-1065

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MAY, 1963



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GEORGE W. FORREST, Editor

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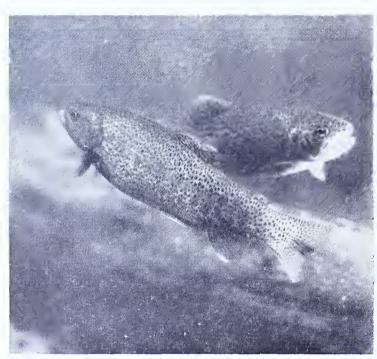
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The origin and history of

THE TROUT SPECIES

of Pennsylvania



RAINBOW TROUT

IN RECENT years, the rainbow, lake, brown and brook trout are accepted species to the Pennsylvania trout fisherman. One rarely thinks, except possibly when in a meditative mood on his favorite trout stream, about the origin of these species. Rarely does one realize the cost, labor and time involved to establish these strains in the wild or adapt them so that they could be reared in a hatchery. In the case of the rainbow and lake trout many hopes and dreams were dashed before they found their place in the Pennsylvania fauna.

At trout fishing time it seems very apropos to go back in history and dig out some of the more interesting aspects of the origin of these four species. Perhaps it may even help to make opening day a little more enjoyable when one knows that these fish just didn't happen, but were put there by dreams that certain dedicated men had almost 100 years ago.

KEEN BUSS

Fishery Biologist
Pennsylvania Fish Commission
Benner Spring Fish Research Station

RAINBOW TROUT

T CAN be said that the rainbow trout had an intermittent history in Pennsylvania. The first plantings were made with the same high hopes as were the plantings of Pacific salmon during this same period. Originally designated as the California mountain trout or the McCloud River trout, enthusiasm knew no bounds when it was first introduced. A passage from 1879-1880 Pennsylvania Report of State Commission of Fisheries best illustrates the reaction to this new species:

"Perhaps no newly discovered fish has awakened so much genuine interest as the California brook trout, not in the sense of never having been known exactly, but its adaptability to fresh-water streams of eastern United States. It promises far better and more lasting results than the meteoric grayling. The McCloud River, in California, where they are found in great abundance, possesses a temperature analogous to our Susquehanna, Juniata and its tributaries. Its general average is about seventy degrees, but in some localities rises as high as eighty degrees."

Words were followed by action for in that same report there was a notation that this species was introduced into Pennsylvania by the State Commission and planted in the Susquehanna River.

In the 1883-1884 reports, the California Mountain Trout was referred to as the rainbow trout. In those years, 23,900 were planted. During this time a controversy started, as it does with any exotic species, which, to some extent, is carried on to the present time. The 1886 report summarized the feeling toward this new species:

"It was claimed for the rainbow trout that it was of much more rapid growth than the native brook trout, and in point of vigor and strength far superior to it. In the first particular—namely more rapid growth—the claim has been sustained, but the sportsmen almost manimously refuse to concede the latter, and with facts strongly in favor of that position."

In the years following 1886, the original interest began to wane. By 1889-91, there was reason to doubt he value of this fish. The report for those years had ost its fire, doubt began to set in and the statements nade were not complimentary for this one-time glamour ish.

"In Pennsylvania the rainbow has been rather exensively introduced but with such imperfect results in nost cases that the Fish Commission has practically given up its distribution."

This was practically the death knell for the early lantings of rainbow trout in Pennsylvania. By 1900, production of this species in the hatchery was greatly educed. By 1914, entries ceased for rainbow trout in he official report.

However, the possibilities for this species were too great to allow them to lie dormant. After World War, when Mr. Diebler was Commissioner, another atempt was made to start these fish in Pennsylvania vaters. The introduction again failed and it was believed that the reason for the failure was because this particular strain of rainbows had originated from the cold, snow-fed streams of California. This form was certainly not adaptable to the streams of Pennsylvania.

At least this was the belief, and the rainbow settled back into obscurity again.

In 1933, an event took place which again raised high hopes for the rainbow trout in Pennsylvania. Earl Kline, an ardent fisherman from Centre County, obtained some fingerling rainbows from the federal government and planted them in the tributaries of Spring Creek. By the following spring, they had grown to 10 or 12 inches and had spread over a good portion of the stream. The trout reached 15 inches by the end of the summer and fishing was the best in the history of the stream.

Again hopes were raised and in the mid-'30's the Fish Commission decided to try rainbows again. This time the techniques were changed. According to C. R. Buller, former Chief Fish Culturist, a domestic stock from a private hatchery in New England was blended with a strain from a federal hatchery at Wytheville, Va. The resulting strain was more adaptable to the hatchery conditions and most important of all, the techniques of the stocking program were changed from planting fingerlings to planting the larger yearlings.

Only in isolated instances such as Falling Springs in Franklin County and in Koon Lake in Bedford County did the rainbows establish themselves and reproduce but by the late '30's the fast growing, larger rainbows provided a good put-and-take fish.

After 80 years the rainbow trout has found its place in the Pennsylvania fisheries but in a quite different situation than the original fisheries men had anticipated. Today this species is found to do best, not in the warmer rivers, but in deep, cool trout lakes and as a put-and-take species in many of our better trout streams which are low in natural acids.



LAKE TROUT

CONTRARY to popular opinion the lake trout was not native to the inland waters of the Commonwealth. In a "Species Account of the Fishes of Pennsylvania" by E. D. Cope in 1879-80, lake trout were listed as inhabiting Lake Erie, no inland lakes were mentioned. In the 1889-91 report of the Pennsylvania State Commissioners of Fisheries, Tarleton H. Bean of the United States Fisheries Commission lists the range of the lake trout to be the Great Lakes region and the lakes of New York. No mention was made of this species in Pennsylvania.

Of the three lakes in Pennsylvania which apparently have a sustaining population of lake trout, none apparently had a native lake trout population. According to the records, they were planted in Lake Giles, on the Blooming Grove Club in Pike County, in 1894, and in Crystal Lake in Lackawanna County just prior to 1897. A list of fishes published for Harvey's Lake in 1897 did not include lake trout. Between 1897 and the late '20's some lake trout were undoubtedly planted in Plarvey's Lake. In the early 1930's the Fish Commission planted lake trout in this lake but by 1935 the stocking was discontinued. In 1951, following a biological survey of the lake, lake trout stocking was again re-established.

Lack of stocking is not the reason for so few lakes containing this species in the Commonwealth. It is obviously a lack of good lake trout environment. Going back to the year (1873) the Commissioners of Fisheries was established, one finds the production of lake trout high on the agenda. From 1873-75, lake trout were purchased from Seth Green, a pioneer fish culturist in New York, and planted in lakes throughout the Commonwealth. At that early date it was noted that the results were not up to expectations. Soon after the purchase of the Western Hatchery at Corry, lake trout, then called



LARGEST RAINBOW trout to die in captivity was a female fish held by, left to right, John Bair and Milford Lonberger, Fish Commission employes at the Pleasant Gap hatchery. She was 31½ inches long, weighed 19½ pounds with a girth of 20½ inches. The "Old Gal" died of natural causes at an unknown age.

salmon trout, were produced in larger numbers than were the native brook trout. Between the years of 1890-92 over one million lake trout of various sizes were planted in Lake Erie and the deeper, natural lakes. Since these plantings did not live up to expectations, the production decreased until 1935 when it was temporarily abandoned until 1951. At the present time lake trout stocking is restricted to Conneaut Lake, Crawford County; Crystal Lake, Lackawanna County; Harvey's Lake, Luzerne County; and Winola Lake, Wyoming County. The total plantings in 1962 (consisting of 18,000 fingerlings) originated from eggs taken from lake trout from Seneca Lake, New York.



BROOK TROUT

BROOK TROUT

THE brook trout is the only species of trout native to the inland waters of Pennsylvania. It was, and still is, found in the very smallest of headwater streams and down into the larger drainages until the water becomes too warm or affected adversely by human activity. Because it is the native species of Pennsylvania it has always been held in high esteem with few of the complaints heard about introduced species. Because of its high esthetic and angling qualities, brook trout were the primary species produced at the first state hatchery at Donegal Springs soon after its purchase in 1873. By 1877 the output had reached 154,000, an enormous number for the time.

As the hatcheries grew in size and production increased, new strains were sought which were better adapted to hatchery production. There are two stories as to the origin of the present hatchery strain in Pennsylvania.

One account has it that General Trexler, at the Allentown Hatchery, received a shipment of trout from a Canadian hatchery in 1916 that did so well he gave a supply of these fish to the Pennsylvania Fish Commission. The other story is that the present hatchery strain is a blend of strains received from the old, established commercial hatcheries. Probably the present strain is a blend of both the Canadian and Pennsylvania commercial strains.

Due to plantings by government agencies and sportsmen from stocks which originated in many parts of the east, it is very doubtful whether any of the original brook trout forms remain in our streams. To the average fisherman, however, the brook trout is still one of the most prized game species regardless of origin.

BROWN TROUT

IF ALL the desirable exotic species planted in Pennsylvania would be as successful as the brown trout, this state would have more than its share of new species. The brown trout were brought to this country from Germany by VonBehr in 1883. By 1886, the German trout, or VonBehr's trout, as they were often called, were introduced into the Commonwealth. Even the eggs of this species proved hardy as indicated by the 1886 report:

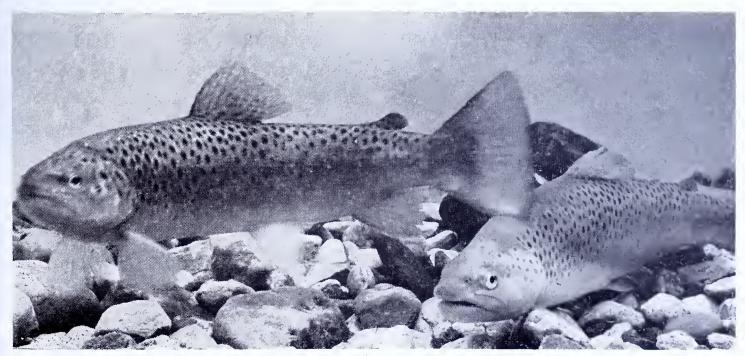
"Through the kindness of Professor Spencer F. Baird of the United States Fish Commission, we have received 10,000 German trout eggs direct from Germany. Repacked at the Cold Spring Harbor Hatchery, they arrived at the Western Hatchery with only 65 dead eggs."

By 1888, 700 yearlings were released and by 1888-91 this species had become well established in Pennsylvania. The success of the brown trout was not without its problems nor without the complaints which follow each new introduction. By 1894, some derogatory reports were received complaining about the brown trout damaging the brook trout fisheries. In some states this is still a common criticism but in Pennsylvania the brown trout had thrived and reproduced in waters which were no longer suitable for the brook trout.

Through all the controversy, the brown trout continued to inhabit and reproduce in many of our streams and today it is generally accepted as one of the important trout species.

The introduction of brown trout to Pennsylvania's streams was heartily welcomed and hailed by an ever growing fraternity of fly-fishermen, particularly the dry fly artist.

BROWN TROUT



The Scales of Fish

By DAVID GUNSTON

The scales of a fish are the present-day remnants of the heavy, enameled "armor-plate" which the earliest known fossil fish wore. As in the course of their evolution fish became more active and speedier, this continuous mail-like covering was less necessary and had to become more flexible. This was accomplished by breaking it up into small sections. In time, fish also developed more powerful teeth and jaws, so that the need for thick external protection grew less. Even so, a few species with these heavy scales still exist, like the sturgeon and the alligator garfish, whose scales are horny enough to blunt an axe.

Nevertheless, the chief function of fish scales is still protection, which is noticeably evident in those fish like the porcupine fish and the trunk fish which have stiff or spiny points to their scales. And at least one fish, the sturgeon fish, actually has defensive scales modified into the deadly offensive weapons of its two tail scales extended like sharp knives sheathed in skin but ready to flick into action when necessary. All fish have a layer of skin over the scales, usually thin and transparent so as to be almost invisible, though occasionally, as with the brook trout, it is fairly heavy and makes the scales hard to see. In the eels the skin is so dense that the scales are entirely hidden. Only rarely is a fish's skin unprotected by scales, and then it is usually ossified, as in the sea horse. The catfish family, uncommon in Europe, has no scales or ossified skin.

All fish scales are actually dead material, being the chemical products of the skin's activity. They may be formed in either of two ways. In the sharks and rays the skin is blown out into minute papillae, the outer layer becoming enamel-hard by the depositing of chalk, rather like the formation of teeth in animals and human beings. In most other fish the scales are formed as simple plates in the inner layer of the skin, or dermis. They do not protrude and are mostly circular or ovoid in shape. These may be further classified into two distinct forms—the ctenoid, or wavy-edged spiny scales, on such fish as perch and bass, making their bodies rough to the touch, and the more usual evenly-curved cycloid, or smooth scales, found in soft-rayed fish like the salmon, carp, trout and herring. But there is no fundamental difference between ctenoid and cycloid scales, for they sometimes both occur on the same fish.

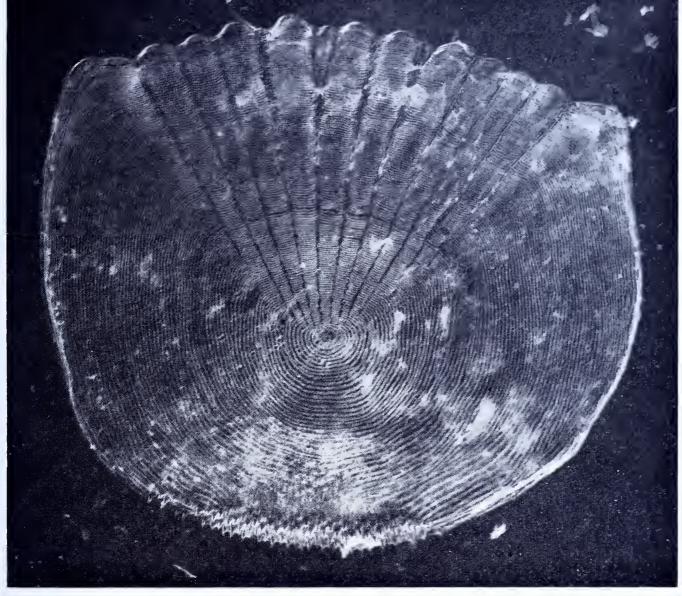
For example, the dab, a flounder-like fish, has prickly ctenoid scales on its dark upper surface, and smooth cycloid scales on the underside.

When a fish hatches from the egg it is quite scaleless or naked. One or two species, such as the catfish, remain that way throughout their life, but the majority develop their scales before they are much older, minute plates appearing in the skin and soon forming into a complete covering. Coarse fish have their scale covering when they are between ½ and 1 inch long, whereas salmon and trout are usually from 1 to 2 inches long. A fish's total number of scales is determined early in its life, no new ones appearing later except to replace any lost accidentally.

Regularly at the appointed age of the baby fish, the little scale nuclei are formed under the skin, of such a size that by just touching each other, they just about cover the fish. Each scale plate is made up of two layers, a flexible, fibrous lower layer, and an upper brittle layer formed by the deposit of clear bony dentine. The lower layer forms in sheets across the underside of each scale, but the upper layer grows only at its edge, so that whilst its diameter may increase, its thickness never does so. Thus also a scale is always thickest immediately under its original scale plate. The dentine is deposited in ridges and furrows often irregularly.

The forward end of each scale lies embedded in the dermis, or inner layer of skin, and the free afterend so develops that it covers the front end of the scale behind it, rather like tiles on a roof. This means that the free end of a scale is the only visible portion, though it is very much smaller than the complete scale.

As a fish grows, it must continue to be covered in this overlapping fashion. This is not done by increasing the number of scales but by each individual scale growing to keep up with that small portion of the creature's body which it covered originally. Such growth is achieved by adding new rings of dentine around the edge, somewhat similar to the way a tree grows. Where this new material is added to the afterend of the scale, it shows in irregular and poorly marked accretions but fortunately the larger portion has clearly defined rings on it throughout the life of its owner.



Fish scale as seen through a microscope.

Yet although these facts have long been known, it s only within about the last sixty years that we have liscovered just how much an examination of these scale rings can tell us about the fish. Whereas a tree idds only one ring per year, a fish scale may add many ings annually, but this ring growth varies according o the seasons, the food supply and the activities of he fish to a considerable extent. So much so, in fact, hat a trained observer examining say a salmon scale inder a low-power microscope can tell not only its ge, but also how long it has spent in the sea, how nany times it has spawned, even, if it has not yet pawned, what its length was at the end of each year of its life. In fact, no other living creature carries on ts person such complete and detailed autobiographical vidence.

The discovery of just how fish scale rings may be nterpreted in this way came from the English and Jorwegian researchers, Johnston and Dahl, working ndependently round the turn of the century. Briefly, t is simply that in summer, when the water is warm nd food supplies plentiful, a fish feeds well and rows rapidly. This means that the scales have to grow wickly to keep the fish covered, so the rings are thereore widely separated. In cold weather, however, when ood is scare, the fish lives more sluggishly, eats less,

and grows slowly if at all. This results in a slow rate of scale growth, the rings lie close together, and these make a dark band, termed the annual check, appear. By simply counting the number of annual checks the fish's age can be ascertained. In addition, with migratory fish like salmon, the summer rate of growth in the sea is very great, with a proportionate wide spacing between the bands, which stand out in contrast to the earlier years of its life spent in fresh water. Further, during its spawning period a salmon or trout temporarily stops eating and lives upon its accumulated fat. This causes an unmistakable wavy line to appear on the scale rings. With salmon, the spawning drain on its body reserves cuts deeply into the edges of the scales. Some rings may be lost completely, and there always appears the heavy, unmistakable "spawningmark," which cuts across the earlier rings, dividing them from the new.

Of course, other factors like the blurring, scarring and regenerations of scales affects such readings, but the main principles hold good for all fish and are of inestimable value to fishery workers.

Fish scales are therefore revealing as well as highly adaptable features, performing their rather odd task for their highly active, streamlined owners, whilst retaining their basic role as an external skeleton.

SUSQUEHANNA SHAD

By J. HERBERT WALKER

One of the last contributions to the Pennsylvania Angler by the late $Mr.\ Walker.$

Over one hundred and fifty years ago the Susquehanna run of shad was the greatest in America. The superiority of the shad fishing here was the major cause of the Pennamite War, a bloody, ugly struggle between Connecticut and Pennsylvania for the control of the upper Susquehanna Valley lands. Even after decline, the river yielded 47,000 fish averaging six pounds between Columbia and Safe Harbor.

Each Springtime during my youthful years along the West Branch of the Susquehanna river, a few "shanty boats" went downstream past the little home town bound for the shad fishing waters on the lower reaches of the main waterway.

That was better than half a century ago.

Those "shanty boats" are gone for two reasons—oldtime shad fishermen who lived up-river from my home town have all passed away, and, if they were here, their boats could not get over the four gigantic power dams far down the main Susquehanna. These dams have also halted the migrations of this wonderful fish upstream during the spawning season and downstream again when the annual biological urge had been satisfied.

When, in the early days, the migrations of shad upstream dwindled to a mere trickle these "shanty boats" carried anglers to the fish. One of the reasons why the shad migrations far upstream dwindled was because of the construction of wooden dams across the rivers primarily to provide water levels for the canals that followed the streams.

But the great, high piles of concrete today, known as power dams, far down the Susquehanna have done far more than wooden dams ever did to bring a quick end to shad fishing in the North and West branches of the Susquehanna river. These dams spelled the doom of shad fishing upstream. It is interesting to read about old-time shad fishing days when new vigorous efforts are now being made to provide passage for shad via fishways in the Susquehanna river dams.

History records there were commercial shad fisheries on the Susquehanna river as far north as Lock Haven on the West Branch and Wilkes-Barre on the North Branch.

And to go much farther back into history one can read these fish were so plentiful in Indian and early settler days—before dams of any kind were built in the streams—that they were caught in large numbers not only to supplement household larders but were even used as fertilizer. The settlers soon learned from the Indians that placing one dead fish in every hill of corn produced a better crop.

Off Selinsgrove, James Silverwood, who was known as the "King of the Seven Islands"—operated a large

shad fishery. Three miles below where the wooden Muncy dam was constructed there was another famous shad fishery. It is recorded that one haul there by a seine brought up 2,600 shad. In the book "On the Frontier With Col. Antes"—for whom Antes Fort not far from Jersey Shore was named—frequently mentions the great shad fisheries.

Thomas Budd, writing in 1685, said: "There are plenty of Fish called Shads . . . the inhabitants usually catch great quantities which they salt up and pack in Barrels for Winter Provisions." The statement was made in a book he wrote titled, "Good Order Established in Pennsylvania and New Jersey."

Gilbert H. Fowler, in his "History of Wilkes-Barre and the Wyoming Valley," wrote: "The premier food fish was shad. The Susquehanna shad constituted the principal food along the Susquehanna. No farmer was without a barrel of shad for the year-around. . . . The common price was three and four cents each. . . . At the Webb Fishery I have known eleven and twelve thousand shad to be taken at one haul. . . . Shad were considered the cheapest and best food of all."

S. W. Fletcher, author of "Pennsylvania Agriculture and Country Life," quotes from the Annals of Luzerne County, published by Stewart Pierce in 1860

"From about the tenth of April to the tenth of June almost every man, woman and child within twenty miles of the Susquehanna feasted and fattened or fresh shad, and every family salted down from one to three barrels for use during the remainder of the year . . . At Stewart's Fishery, one of about a dozen in Luzerne County, 10,000 shad were taken at a single haul. The seine could not be drawn to the shore and the shad were scooped in boats, thence loaded into wagons and drawn away."

In Henry Blackman Plumb's "History of Hanover Township and the Wyoming Valley," a resident of Wyoming Valley recalls: "Seines were used by some but shad could be caught by anyone with hook and line. They needed no bait—only just throw in and pul out and you would have shad on your hook nearly every time. These were large fish hooks—they had three hooks and a barb on each."

Fletcher, mentioned previously, wrote: "After about 1830 construction of canals and dams began to interfere with the free movement of shad upstream and the catch dwindled. . . . They were taken in considerable numbers, however, until about 1870."

It should be pointed out here that the dams constructed on the North and West Branches of the Susquehanna river were to provide water supplies for the canals. These dams were provided with "chutes" ir mid-stream so that timber rafts could move down the waterway without difficulty. Up through these "chutes,"



NETTING SHAD along the Susquehanna River nearly 50 years ago. Catch appears to be very poor in this instance. Veteran fishermen declared over-fishing in lower river was cause of fade-out of shad in the early 1900's. Shad runs were decreasing prior to dam construction in the river.

when the waters were high in Springtime, the shad could migrate because at these "chutes" the water levels at this time of the year were practically the same above as below. The construction of solid concrete dams at Safe Harbor and other sites on the main river about 1929 doomed the migration of these fish upstream.

Carl Carmer, in his wonderful book, "The Susquehanna," published by Rinehart & Co., wrote:

"Gay was a 'play day' to celebrate the end of Spring plowing and planting. The settlers began their holiday by building a willow-and-brush fence across the channel between the mainland and one of the larger islands. The channel on the other side was effectively blocked, at least to fish, by three boys who rode horses back and forth making as much disturbance in the current as possible. Many of the community's citizens gathered three miles above the fence and at a given signal entered the water, stretching a crudely woven brush net from shore to shore. Here they began to 'drive the river,' pushing the net ahead of them, splashing, swimming, wading and shouting.

"Countless shad which had been moving up-river to spawn turned about and swam away from the frolicking pioneers. Diverted by the three young horsemen into the channel blocked by the willow fence, they were soon crowded into the improvised pen where they made wild dashes against the legs of advancing fishermen and in frantic efforts to escape leaped high into the air.

"Now the entire population—men, women and children—began the hilarious sport of seizing the big creatures by hand and throwing them high on the river's bank. Exhausted at the end of the day, they found that



OLD-TIME PHOTO shows shad fisherman weighing a few which were caught along the Lancaster-York County shore.

their catch numbered eighteen hundred shad. Each boy and girl of the village received five, each woman thirty and the men divided the vast remainder equally among themselves. Happily then the settlers trudged back to their homes through the dogwood-haunted dusk. No one need worry about going hungry for months to come. There would be salted shad in plenty along that wide curve of the Susquehanna known as Great Bend."

Old-timers knew when the shad run began. When the white blossoms of the shad bush—botanists know it as service berry or Juneberry appeared on the mountainsides it was shad fishing time. This tall shrub or small tree, with its white blossoms and red, berrylike, edible fruit was the harbinger of good days on the waterways.

With hook and line and with seines and nets of every description and size, settlers and fishermen treked to the streams. Here was fishing the like of which we may never again see in the Land of William Penn.

The nationally famed Bell & Holmes report sponsored by the Pennsylvania Fish Commission has opened new and exciting possibilities of establishing workable fishways in the Susquehanna River dams. Engineering and biological experts from Pennsylvania, Maryland and the U. S. Fish and Wildlife Service are currently working on the project.

Big Trout and the Streamer.....

By ED SHENK

The streamer and I first became acquainted some 20 odd years ago along the stream of Jassid fame, the Letort, a southern Pennsylvania limestone stream. For some reason the trout were coming slow that April day. I had been using wet flies, and angleworms with limited success. Presently along came an April shower, or rather a downpour. I rummaged through my fly box and finally spotted a soggy coachman streamer which I had fliched from my dad the night before. It took only a few casts before a scrappy rainbow belted the fly, and marred the surface of the rain-splattered water with his acrobatics as he protested his capture. Although I'm sure it wasn't so, it seemed as if every pocket produced a strike. Since that day I've carried a box full of streamers on every trip I've ever made in quest of trout.

Streamers are designed generally to represent the many types of bait fish which inhabit trout waters, the dace, the shiner and the muddler. As a trout grows larger, he generally wants a good mouthful when he feeds, hence a preference for minnows of some sort. That doesn't mean that a large trout can't be taken on a nymph, or dry fly. Even very large trout at times can be seen sucking tiny flies from the surface of a stream. But by and large the big trout is apt to be enticed more often by a fly representing a minnow than by flies representing other forms of trout feed. I'n not suggesting that you fish streamers over fish rising to shad flies for instance or other times when the trout are feeding selectively on one insect form or another. They do sometimes work at that time, too.

How could I ever forget the big brown in the upper Yellow Breeches Creek a few seasons ago? The trout really were taking the streamer that morning. We fished the Letort a few hours at daybreak that morning, before we headed for the Breeches. "Howdy" Hoffman and I. I see by my scribbled records that the streamers took 6 trout and raised 9 more on the Letort. The Yellow Breeches is fished hard at the place we started, and that morning was no exception. After hooking and releasing seven small trout I creeled an eating-size rainbow. The second cast to that pocket of water brought out a rainbow of some sixteen to eighteen inches, which twisted off the barbless hook. The remarkable part of that episode was the fact that a spectator fisherman said, "You must be about the twentieth fisherman that fished through there, and none of the others caught a thing." I was persuaded to "cast a few" into the pool this fisherman was trying. It took only one cast to raise and land a sixteen-inch brown right under the nose of the flabbergasted angler. I fished downstream until I came to the long pool that Howdy was fishing with nymphs. "A good one has been swirling just above me," Howdy said. "Give him a try." I made half a dozen casts, the pool was disturbed by a king-size swirl, and I was fast to a heavy trout. I got below this trout and minutes later led a brown of nearly four pounds into shallow water and beached him. A closer examination of the fish revealed that she was crammed full of nymphs, even had her mouth full of them, yet it took a streamer to entice her. I was using a number 12 white marabou that day, still my alltime favorite pattern of streamer.

I went back to the Yellow Breeches a week later and took a three-pound brown from the same pool again on a white marabou, this time using the natural drift. Caught this one after a die-hard angler had fished the pool consistently for three hours using worms, minnows, and an assortment of hardware.

Tackle for streamer fishing need not differ from conventional fly-fishing tackle. Most experts recommend a fly rod at least 8½ feet long with matching torpedo-taper line, but that tackle seems too specialized for general fishing. The majority of fishermen today don't go out with the idea of using only one type of fly or lure for an entire day. A shorter, lighter rod is easier on the arm and will cast a streamer nearly as efficiently as the longer rod. The greatest disadvantage of the shorter rod is when wading deep and casting far. As a rule I prefer shorter casts relying on a sneaky approach to get me in position for an effective cast to a hot spot. The long cast has its place, but generally a trout is more difficult to hook on a long cast, so I prefer the short cast as the standby, with only the occasional long casts.

In this day of the shooting head line with a monofilament running line, the shorter rod is as effective, for the average fisherman, as the long rod.

The first time I ever fished New York's Salmon River I was using a 7½-foot rod. This stream is a fairly large one, but I had no trouble fishing most of it with the light rod. On one or two occasions I had to cast 75 feet, but the double line haul sent the fly to that distance with no trouble. I was again using a white marabou, catching a trout here and there. I came to the mouth of a feeder stream and took five brook trout all of which were released. A deep, enticing-looking hole seemed worthy of numerous casts. Perhaps fifteen casts were made before there was any action. Then a rainbow as long as my arm took the marabou like a hawk lighting on a chicken, jumped three times, then tore downstream. There was no stopping that baby and the leader snapped when the end of the backing was in sight.

But, back to fundamentals of streamer fishing. As in most fly-fishing the short to medium length cast will be the standby with long casts more the exception than the rule.

Methods of fishing the streamer are varied and there is no one "best" way. A good streamer fisherman has many methods at his disposal, and uses each as the conditions change.

Start your streamer fishing by casting diagonally down and across stream, twitching the rod tip to impart more action to the fly. Follow the fly with your rod half raised, so that the rod will "take" the strike. Generally, a very slight raising of the rod will set a well sharpened hook. If no strike is forthcoming as the fly straightens out below you, pause before making the retrieve. Give the fly a few twitches to tantalize any watching fish and then slowly bring the fly back toward you in a series of short jerks and pauses, ready at all times for a quick strike.

On open streams, where the bottom is not covered by water weeds and grasses I like to fish my streamer as I would a nymph. This is short cast fishing at its finest. I try to cast above the spot where I suspect a trout to be and allow the fly to drift naturally downstream, keeping alert at all times for the telltale twitch of the line as a trout takes. In some instances you can watch the fly instead of the line, and see the trout as he sucks in the streamer. I start this drift fishing with only the weight of the hook to submerge the fly. If the trout are not real active and the shallow drifting fly will not bring them up,

I add a small piece of strip lead to the leader. I then want just enough weight to take the fly close to, but not on the bottom. Occasionally the fly will stop on the bottom, and a slight twitch of the rod tip will start it moving again.

I feel that ninety per cent of the time the streamer is retrieved too fast and taken from the water too quickly. I'm as guilty of this as the next angler. Generally the streamer should be fished slowly and brought as far back toward the fisherman as possible before the fly is lifted for another cast. On many occasions I've lifted the fly from the water because I felt that it was far enough past the spot where a trout should hit, only to have a big fish show his back out of the water looking for a fly that wasn't there. Once at dusk, while fishing the Letort with a streamer, I brought the fly nearly to my feet before taking it from the water. As it left the water a monstrous brown trout glided up on the moss with half his back out of water. That old boy with the hook jaw laid there a few seconds with his eyes barely submerged before he rolled and floundered back to deep water. How big? You'd think I was lying if I gave my estimate. And that hasn't been the only time. More than once I've pulled the fly away from a big fish (not knowing he was there) only to have the fish swirl and roll all over the surface like he was actually hooked on the end of a line. That's an unforgettable experience. A big trout usually takes longer to make up his mind about hitting a streamer, so fish slowly, and fish each cast to the limit.

There are hundreds of patterns of streamers on the market, some good, some lousy, but the angler needs only a few patterns in his box to be a success. The trouble with too many fishermen is that they rely too much on pattern and not enough on method. For instance my all-time favorite pattern for years has been the white marabou. I've seen lots of marabous added to fly boxes because a fisherman had seen me land a big trout with one. But the same fishermen try the marabou a few times, catch nothing and right away call me a liar and claim I didn't actually catch the fish on a marabou but some "secret" pattern. Those fishermen will read an article about a certain pattern and fall all over themselves trying to obtain some.

After I made my first catch on streamers I feverishly tied so many different colors and patterns of streamers that I couldn't hope to give each a fair trial. The past few years I've whittled my streamer patterns to possibly a dozen and that's still too many. I have a favorite few which I use nearly all the time, trying something new with tongue in cheek, before I condone or condemn it.

As you have gathered by now, tops on my list is the white marabou. Until recent years these "feather dusters" were listed as attractor flies, for locating fish but not for catching. Chief reason for that was because (recommended) sizes were 4 and 6 and on Eastern trout streams a marabou that size is just too big for 99 per cent of the trout. Even large trout will roll and show themselves for a marabou that size but won't take it. Often when I started using sizes 8, 10 and 12 I not only attracted more trout but hooked more too. My best size is 10 on a 3X or 4X long hook tied thus: Silver tinsel body with a silver wire ribbing, red throat, white marabou wings, black head with painted eyes. I've been sitting here thinking of some of my marabou-caught trout and I can picture some of the big ones taken from most of the waters I've fished in various states.

Second on my list of streamers is a dace pattern for clear water. Hook size 10 and 12, body gold tinsel ribbed with gold wire. Throat a wisp of red or orange hackles. Wings: first a thin hank of yellow bucktail topped with a pair of golden badger hackle feathers, tied so they flare. This gives a breather action to the fly. Top this off by painting eyes on the head of the fly.

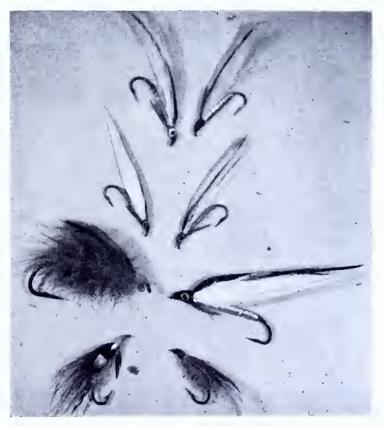
Third on my list is not one but a group of bucktail flies,

that also represent the black-nosed dace to some extent. These are the brown and white, brown and yellow and black and white and white bucktails. The darker color tied in top with the lighter color underneath or just touching the body. Bodies can be either gold or silver tinsel, throat a wisp of red hackle. Paint eyes on the fly head. For slightly discolored water I sometimes use the Mickey Finn streamer.

Last on my list is the big Fledermaus with a full muskrat fur body ribbed with gold wire (to hold it together better) and a slim gray squirrel wing. This is my late evening and night fly, tied full on size 4, 6, and 8 hooks.

Some of the better commercial patterns are as follows: Gray Ghost, Black Ghost, Black Marabou, Yellow Marabou, Dark Tiger, Light Tiger, and Coachman.

Best advice I can give though is this: Limit yourself to two or three patterns and learn to fish them correctly. After you've learned to fish them correctly you'll have plenty of time to start looking for that "secret" pattern that will catch trout day in and day out, rain or shine. Frankly I don't think you'll ever find it.



Reading left to right top to bottom:

Top Row: Dace pattern No. 1—Body: gold tinsel ribbed gold wire. Wing: small bunch yellow bucktail topped with two golden badger hackles. Throat: red feather. Yellow Marabou—Body: gold tinsel ribbed gold wire. Wing: pale yellow marabou topped with three strands peacock herl. Throat: red feather.

Second Row: White Marabou—Body: silver tinsel ribbed silver wire. Wing: white marabou topped three strands peacock herl. Throat: small wisp red or orange feather. Dace pattern No. 2—Body: silver tinsel ribbed silver wire. Wing: small bunch white bucktail topped with two white badger hackles tied to flare. Throat: red feather.

Third Row: Fledermaus (large for late evening fishing)—Body: muskrat fur tied very full. Wing: gray squirrel tied sparse. White Marabou (large)—Tied as above except fuller body of silver tinsel.

Bottom Row: Dark Tiger—Body: yellow chenille. Wing: brown bucktail. Tail: barred wood duck feather. Throat: red. Eyes: jungle cock. Fledermaus (small)—Tied as above except body not tied as full.

Boating-



AMERICA TAKES TO THE WATER AS INTEREST IN BOATING SOARS

RECREATIONAL BOATING offers the opportunity to get away from it all, whether it be for a few hours or a few weeks. Last year, one out of every five Americans went boating. The figure is expected to be even higher in 1963.

Last year about one out of every five Americans went boating. That's a pretty sizable percentage when you stop to think about it. The swing to recreational boating didn't really start until after WWII and it's now a better than \$2½ billion per year industry. What's behind it all? The Evinrude Motors people set out to find the answers and came up with some interesting facts.

They were interested, of course, in why people buy outboard motors. Here's what the study revealed. It's almost a toss-up when the two most mentioned reasons—fishing and all-purpose boating—are compared. Next came water skiing. Over 20 per cent of the motors sold are bought specifically for skiing use. Least important, according to the study, are motors for use in racing.

About a quarter of the motors sold by the Milwaukee manufacturer are delivered to first-time outboard buyers. Based on total sales figures for the entire industry, the Evinrude statisticians estimate that in 1962 almost 100,000 Americans bought their first outboard motors. The remainder of the outboard market is made up of repeat customers—people who have bought two or

more motors over a period of years.

How long do people keep outboard motors before trading them for new models? It varies but averages about three and a half years. Few outboards are actually worn out in that time; it's just that people want new features or in many cases, larger motors.

Eighty-eight per cent of the people who bought new Evinrude outboards last year planned to use them on their own boats. The other twelve per cent were mainly fishermen who rent boats but use their own motors.

What type of boat do beginning boatmen usually buy? Most popular is a runabout in the 14-15 foot category. It's usually powered with an outboard of from 18 to 40 hp. Such a combination makes an ideal all-purpose rig. It can be used for fishing, water skiing, skin diving, cruising in sheltered waters or for any number of other water activities. Prices for a rig of this type will vary considerably but start at less than \$1,000.

If you've been toying with the idea of getting into boating, go ahead, give it a try. You and the other hundred thousand people who jump in this year will find that the water's fine.



Care of the Hull

By WAYNE HEYMAN

What is "dry rot"?

Actually the meaning itself is false since it is impossible for wood to rot when dry. Perhaps the term may have originated in the long ago past when ancient nariners discovered dry, crumbled wood after the rot had done its work.

The problem now is how the modern outboard owner of today can prevent this same condition from ruining his own boat. To understand dry rot, it should first be understood that it is caused by a fungus-like substance that feeds on the cellulose contained in all wood. It's a plant, somewhat like a mushroom, and it thrives best in dark, damp crevices where the temperature is mild. This fungus remains inactive in cold weather; it will not develop in either dry or oxygenless waterlogged wood; it must have fresh water if it is to spread at all—salt water actually kills fungus plants.

Dry rot is seldom found in the dinghy, pram or small rowboat when reasonable care is taken. Simply giving these small type rigs a thorough drying out after each day's run is enough precaution in preventing the fungus from gaining a foothold. Should it appear, however, t is usually localized and can be easily remedied.

It's the larger runabouts on up to the cruiser and pig houseboat sizes that often are plagued with serious rot problems. These bigger boats are equipped with many deck joints, thicker timbers, cabin linings, compartments, and bulkheads which encourage leakage and slow drying out.

Every boat should be checked over regularly for iungus signs. It is not necessary to inspect the bottom planking since this area is usually the last place for he disease to start. But it is important to closely check racks, open seams, screw holes, windshields, cabin oofs, cockpit floors and similar openings where rain and dew seep in and remain for any period.

Should dry rot appear, then there is only one method of cure: Tear every particle of the infected wood-out. Even to leave one small spot is enough to eventually lestroy the entire boat, for the disease spreads like wildfire. Painting over dry rot will not rid the wood of the disease. Instead, it helps to spread the fungus underneath the shelter of the paint.

If it should become necessary to remove any planking, then start the job with a sharp ice pick and pry out all plastic wood or wood fill covering the screws. Afterwards replace all fittings with those made of brass, since in time iron or galvanized screws will rust away, leads will break off and loose planks or warping will result. Fungus infected planks must be pried free, but a certain amount of care should be taken to loosen hem in such a manner that ribs and frames are not lamaged. The best method is to first cut a number of mall wooden wedges. Lay these aside until needed.



WITH PROPER CARE a hull will remain sleek and trim for many seasons.

Once the screws have been removed, dig away a small section of the permanent bond-type glue between the plank to be removed and the frame or other plank members to which the infected one is joined.

Now drive in the first of the small wooden wedges. This should be done gently, with light taps of the hammer, until all the wedges needed are driven in around the infected plank. Never force or attempt to pull the plank out since the original glue will prove stronger than the plank fibers holding the wood together. Just keep tapping in each wedge deeper along the entire length of the plank, until the gradually increased pressure forces it out.

Before replacing with a new plank, select one that is straight-grained without bird's-eye distortions, spirals, or curls. Straight-grained planks offer greater strength.

It is almost impossible for even the best professional shipwright to obtain a perfect "marrying" of plank on frame. But there is a way of doing the job almost to perfection. First take some linen strippings, slightly wider than the frames or battens to which the new plank is to be secured, and dip them in glue. When ready, place the strippings, sandwich-like, between the plank and frame. This will add to the watertight integrity of the hull by cushioning and filling any slight defect that may exist in the frame or plank.

To remove any chance of splitting the new plank, avoid drawing up too tightly on any single screw until all screws are in place. Then gradually tighten each screw in turn.

There are several types of caulking compounds on the market. One type is used for bottom planking and the other is designed specifically for top seams. It is always wise to consult your marine dealer to be sure of obtaining the correct compound for the location you plan to caulk.

When ready to paint, keep in mind that the best job is the one done slowly. Never rush a refinishing job. Many light coats of either paint or varnish will look neater and adhere much longer than a single heavy coat.

Those Outboard Horses

You paid around \$25 to \$33 apiece for the "horses" in your new outboard motor and if you are an average boat owner, you retired some of them to pasture midway through the boating season. Right now some of the horsepower beneath your powerhead is consuming fuel and not doing any work.

One boating expert estimated that Pennsylvania outboarders alone are feeding 4,000,000 horses that were built into their engines and that are now on the sick list. Your boat will go farther on a gallon of fuel when you put all your horses back to work.

Out of 100 boat engines picked at random from public moorings in Pennsylvania, 73 were improved from 3 to 15 per cent by a good tune up, and the other 27, including some new motors, were improved from 16 to 50 per cent.

One of the major causes of poor engine efficiency is "lead poisoning." Most veteran outboarders are familiar with the symptoms of this engine disease, which can cost time, pleasure, money and decrease of horsepower. Few, however, know that the cause is gasoline which contains lead compounds. Unlike the high-compression four-cycle automobile engine, the two-cycle outboard motor has low octane requirements. When "regular" or "premium" grade of automotive gasoline is substituted for marine white gas, then the owner can expect immediate loss of power and in most cases, an expensive engine teardown.

What happens is the high lead content of car fuel builds up sufficient deposits on both the spark plugs electrodes and insulator tip. Since the accumulated lead deposits *are* electrical conductors, they quickly short out the spark plug. This then prevents ignition of the fuel-air mixture, which in turn leads to wet-fouling due to accumulation of unburned fuel on the electrodes.

The projecting lead spots or flakes deposited on spark plugs become incandescent, ignite the fuel-air charge *before* the spark occurs, and cause pre-ignition which results in loss of horsepower and serious engine damage. Obstruction of the exhaust ports also occurs when leaded gasoline is used.

No boat owner can expect peak engine efficiency if the spark plugs are of the wrong grade for the conditions under which they are used, or worse, if the gap is set wrong. The motor's service manual (supplied with every new motor) specifies the type spark plug and gap setting best suited for that particular motor. However, in the final analysis, the proper range spark plug is the one which performs properly in your motor under the conditions it is most used. For example, many experienced outboard owners will, on arrival at their favorite trolling grounds, change to a warmer set of plugs during the actual trolling period and then replace these plugs with an average range set for the run home at higher speed. This consideration for the motor's work-load keeps the engine's horsepower on an even keel.



The best way of performing a spark plug check is to take the boat out on a timed test-run; but keep the running conditions as close to those under which the engine will normally be used. Afterwards, check the core section of the spark plug. If it's black, sooty or moist, the plug is too cold. If the porcelain core appears to be burned, gray-white or blistered, then they are running too hot and you should switch to a cooler plug. If they are chocolate brown, put them back be cause that's the way they should look. Check your fue tank before making the test. It should be made with a fuel mixture not too rich or overly lean.

Keeping the spark plug's electrode gapped at the correct setting is a key factor in maintaining your engine's horsepower. Recommended spark plug gaps will vary from model to model, but yours should be rigidly kept by that specified in your service manual. The range is between .025" and .035". Racing engines should be set at .020".

Neglecting to properly lubricate the engine, particularly the lower unit, is another major fault that quickly leads to loss of much horsepower. In short, faulty lubrication will eventually force the gears to figh against one another in an effort to turn. Inadequate engine lubrication will also cause bearings to wear rapidly, bushings to deteriorate (and perhaps seize) and oil seals, which normally prevent crankcase compression loss, will be ruined.

There is no set standard for lubricating each mode or make of outboard motor. As a rule though, motor run in fresh water should have their gearcase drained flushed and refilled every 50 hours. All other point such as throttle shaft bearings, starter pinion gear shaf and magneto linkage should be oiled every 60 days. It salt water the gearcase should be serviced every 25-50 hours and the other points lubricated every 30 days.

Most outboard owners enjoy tuning up their own motors. It not only gives them a personal feeling, but also the knowledge of a job well done. Frequent moto checks, whether done in the home garage or by some competent marine dealer, will keep your engine's horse power where it belongs—under the powerhead.

Spring Fitting-Out Check List For Outboard Boats

Thinking about getting your outboard boat ready for the season? Here's a check list of things to do before slipping it into the water.

- 1. Clean-up—Tilt the bow up, remove the drain plug and hose down both the interior and exterior of the boat. Warm water and a mild detergent will remove most of the winter grime. Follow the manufacturer's instructions when applying wax or polish.
- 2. Hardware—Clean all bright metal hardware and then protect it with a coat of good wax. Be sure all screws and bolts are tight.
- 3. Steering System—Check cables and pulleys for wear. See that the cables are adjusted to the proper tension.
- 4. Electrical System—Start the season with a fully charged battery. Check running lights to be sure the bulbs haven't burned out. Inspect all electrical wiring.
- 5. Safety Equipment—Carefully inspect life preservers and cushions for condition and to see that they are Coast Guard approved. A first aid kit and a few flares are worth-while additions to every boat.
- 6. Other Equipment—Anchor and mooring lines should be inspected for signs of wear or rot. Don't take a chance on losing your anchor because of a faulty piece of line. Boats not equipped with oars should carry a paddle. Check all accessories to be sure they are properly attached and in good working order.
- 7. Trailer—Check tire pressures. Pull the wheels to inspect and repack the wheel bearings. Lubricate the rollers and coupling mechanism. Check the lights and wiring.

This check list applies to outboard boats of all types. In some cases it may be necessary to go quite a bit further. Wood boats may require calking and painting and should be checked for signs of dry rot. Fiberglas boats can also be painted but this should be done after consulting a qualified marine dealer. Aluminum boats should be inspected for loose or popped rivets.

Equip Boat Right

The law requires that all boats carry at least a minimum of equipment. However, the wise boatman will take it upon himself to have an anchor, paddle, extra line and other useful equipment aboard at all times.

Anchor Line Tip

To anchor a boat properly, you will need a line 6 to 8 times as long as the depth of the water. If the line is not long enough, a vertical rather than horizontal pull will be exerted and the anchor will not hold to the bottom as well.





LOADING IS A CINCH with this new automatic, electric hoister that loads any boat up to 4,000 pounds onto a trailer with a flick of a string.

New Battery-Operated Power Winch for Easy Loading

The new Powerwinch is simply bolted to the trailer, where the hand operated winch generally goes, cable-hooked to the bow of the boat and, with a pull on the string which operates a spring-loaded switch, the boat eases onto the trailer all by itself.

Operating from a car battery, it is easily attached to any auto battery by one wire and to the car body with another wire which acts as a ground. The new winch may eliminate back sprains, slipped discs or possible strain on the heart. It is so simple to install, according to the maker, even a woman, who finds it difficult to attach a vacuum cleaner to a socket, can handle the job without taxing brain or brawn.

An all season device, it can be used for getting a car from mud or snow, pulling a loaded trailer to a car or toting a big game carcass for the hunter.

Trailer Safety Tip

Stand to one side when winching a boat onto a trailer. If the taut cable should snap or the hook straighten while you are standing in front of the trailer you may be hit by the lashing cable.

Leveling Out

To level out the ride of an outboard boat, set the angle adjustment on the motor. To bring the bow up, tilt the motor away from the transom. To overcome "Bow bounce," set the motor in toward the transom.

Fish Commission Spring Meeting

The Pennsylvania Fish Commission (at their April 1, 1963, meeting at Harrisburg) voted to cut propagation of trout to be produced for release in 1964 by forty per cent.

The action was taken by the Commission following a careful study by the fish committee of the Commission and members of the propagation and research staffs.

According to Albert M. Day, executive director, the decision to cut back the 1964 production was made necessary by reduced income available to the Fish Commission for the 1963-64 fiscal year.

More than 1,730,000 trout are scheduled to be released in Commonwealth fishing waters prior to the April 13 opening of the 1963 trout fishing season. The in-season releases are expected to total nearly 1,000,000. These releases include approximately 450,000 trout to be distributed in Pennsylvania waters by Federal hatcheries under the cooperative program initiated in 1962.

The reduction in the number of trout to be produced by the Pennsylvania Fish Commission is not expected to affect the number of Federal trout to be made available for distribution.

The Commission director stated that since August, 1961, the Commission has made drastic reductions in operating costs in all major lines of activity in an attempt to bring expenditures in line with declining income. He said that every possible effort has been made to avoid the cutback in the propagation program.

Day said the hatchery division complement of personnel, which totaled 180 in 1961, has already been cut to 134. He also said that in an attempt to keep up production of trout, replacement of equipment, major repairs to hatcheries and other necessary maintenance work has been held to an absolute minimum.

He said every attempt will be made to restore the production schedule in 1965 if additional funds are made available to the Commission.

Federation Endorses Commission's Increased Revenue Proposals

The Pennsylvania Federation of Sportsmen's Clubs endorsed three plans to help the Fish Commission raise revenue during the Federation meeting held at Harrisburg March 30.

The Federation voted, without floor discussion, to endorse the Commission's plan to increase its license fees by \$2; to ask for a General Fund appropriation for the replacement of the Upper Spring Creek hatchery, lost through pollution; and to recommend transfer of marine fuel tax revenues to the Fish Commission.

About 200 people from 57 counties attended the regular spring meeting of the Federation.

Governor Scranton became the first Pennsylvania chief executive to address the Federation in 26 years.

The Federation also voted to support the Fish Commission's boating bill; to support the proposals of a Federation subcommittee for immediate construction of Susquehanna River fishways; to oppose consolidation of the Fish and Game Commissions; to seek legislation to raise from 12 to 18 inches the minimum legal size of striped bass, and to urge the Fish Commission to seek Federal cooperation in providing fish passages in the Tocks Island Dam on the Delaware River.

National Fisheries Center Approved

A national Fisheries Center to be constructed in the District of Columbia at a cost of nearly \$10 million has been given final approval. Tentative plans include saltwater and fresh-water community circular pools, each 80 feet in diameter by 14 feet deep, to be viewed from three levels. Six additional community pools, both saltand fresh-water, are planned, each to be 56 feet across by 10 feet deep, to be viewed from two levels. About 160 individual tanks are contemplated for salt- and fresh-water specimens in their natural surroundings.

A 400-foot trout stream will discharge into an 80-foot bass bayou and rain forest setting. A tropical community pool 32 feet across and 8 feet deep will be designed for two-level viewing. The entire complex is expected to accommodate some 1,300 species of fish and associated aquatic life.

The National Fisheries Center and Aquarium is expected to attract about eight million annual visitors. In addition to its educational aspects, the unit is to be a functioning research center for fisheries investigations. An admission charge of about 60 cents for adults and 30 cents for children is expected to defray construction costs and provide an annual operating budget of \$800,000 per year. When preliminary surveys are completed, construction is expected to take about $2\frac{1}{2}$ years.



Pennsylvania Game Commission photo by D. L. Batcheler

Land and Water Conservation Fund Bill

The Senate Interior and Insular Affairs Committee held a hearing recently on S. 859, a bill to create a Land and Water Conservation Fund Bill.

The Outboard Boating Club of America was among those groups which presented testimony at this hearing.

In general, the objectives of the bill were endorsed, particularly as they reflected the recommendations of the Outdoor Recreation Resources Review Commission.

The OBC testimony emphasized that the boater obviously will receive greater benefit use from this Federal marine fuel tax (estimated by OBC at \$35 million annually) as part of the proposed Conservation Fund than he now obtains from its deposit in the highway fund. At the same time, however, it was noted these same fuel tax monies could produce far greater results if established as part of an earmarked matching fund comparable to the D-J and P-R programs. Supplementary oral testimony was directed mainly to this point. These oral comments also emphasized that many of the boating agencies in the states looked to their own state marine fuel taxes and possible Federal matching funds as a key source of financing future programs

The hearing began with an unusual joint appearance of Secretaries Udall and Freeman. Both were questioned critically by committee members of both parties. It became clear the committee was anxious that many of the aspects of the proposed program which were left open in the bill be tied down in more specific detail. There also seemed to be a difference of opinion within the committee as to whether an acquisition program such as contemplated by the bill should be financed out of general appropriation—as basically recommended by the Outdoor Recreation Resources Review Commission—or whether special sources of revenue should be utilized as the bill proposed.

Another line of questioning was whether it was appropriate to charge special entrance fees at various kinds of Federal installation (such as the bill proposes—though none of the details are given), or whether there would be too much resent-

GOVERNOR WILLIAM W. SCRANTON signs 1963 National Wildlife Week Proclamation in presence of state conservation agency heads and officials of the Pennsylvania Federation of Sportsmen's Clubs. Seated at Governor's right is Seth L. Myers, Pennsylvania State Chairman, National Wildlife Week; at left is Carl White, president of Pennsylvania Federation of Sportsmen's Clubs. Standing, left to right, are: C. E. Palmer, treasurer, Pennsylvania Federation of Sportsmen's Clubs; Dr. Maurice K. Goddard, Secretary, Department of Forests and Waters; Dr. Charles Wilbar, Secretary, Pennsylvania Department of Health; M. J. Golden, Executive Director, Pennsylvania Game Commission; and Albert M. Day, Executive Director, Pennsylvania Fish Commission.

ment to this since most of these areas have traditionally been open to all without charge.

Most of the witnesses testifying indicated that while they favored a major acquisition program at this time, there were a number of needed refinements. These particularly included increasing the amounts of money available to the states, a more favorable matching formula from the states' standpoint, and much greater emphasis on development of existing public lands.

Identical legislation has been introduced in the House of Representatives (H.R. 3846, etc.) where it has also been assigned to the Interior Committee. It is not known when the Senate Interior Committee will act on the bill although it appears that action will not be as early as previously had been anticipated. In the interim, it appears the Senate Interior Committee would be interested in the views of those who might care to submit them. Senator Henry Jackson (D.-Wash.) is Chairman of the committee.

Keep America Beautiful To Meet in Washington

A national conference on litter prevention will be sponsored by Keep America Beautiful at the Shoreham Hotel, Washington, D. C., June 23-25. Government officials, civic leaders, and representatives of labor, industry and service organizations will participate in the meeting, which is expected to attract about 500 persons from all over the country.

Mount Your Trophy Heads

By JAMES T. VALENTINE



MOUNT YOUR OWN trophy heads if you insist on a "Do-It-Yourself" project. If you have the time and patience, a minimum of tools and material will do a good job.

If you are an ardent fisherman and have fished Pennsylvania's bountiful waters hard enough, long enough, and often enough, you have undoubtedly, at one time or another, caught a "braggin' size" fish. By a "braggin' size" fish I don't necessarily mean a world's record—or anything close to it, but rather a musky in the twenty-pound class, a seven-or eight-pound walleye, or possibly a five-pound largemouth.

These are fish catches that don't happen every day to the average fisherman (or even to those who feel they're a cut above the average), but perhaps once every few years when Lady Luck chooses to cast a favorable smile in his direction.

When it does happen, in most cases, the pleasant memory of these lunkers is doomed to remain locked in the mind of the lucky angler forever. As we all well know, talking about the "big one" you caught several years ago will stir about as much enthusiasm among fellow anglers as the "one that got away."

Without question we would all like to have a fifty-inch musky, hanging in its entirety, on the den wall, but when we figure the taxidermist's fee connected with such a project, we quickly lose interest. After all, how many "average" fishermen can afford to lay out seventy-five to one hundred dollars for a mounting job.

With this in mind I would like to share with you a very simple and inexpensive method of preserving some of your trophies. The total time involved should be less than two hours; the cost should not exceed one dollar. This seems a reasonable sacrifice in order to be able to look up on the wall and see the head of the "big one" that didn't get away.

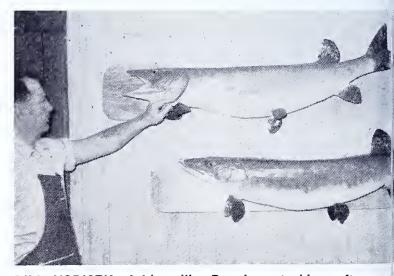
The few materials necessary for the job are as follows: a sharp knife, supply of thumb tacks, cardboard box, box of table salt, wooden mounting board, upholstery tacks, two dark green transparent marbles, putty, and some clear varnish.

PROCEDURE FOR DRYING TROPHY HEAD

- 1. Sever head from fish's body by cutting directly behind the gill covers. Remove eyes from sockets, cut and scrape excessive meat from area where backbone was connected to neck. Wash entire head in clear luke-warm water to remove slime covering.
- 2. Salt back of head and neck, place head on cardboard box, spread gill covers and secure in this position with thumb tacks. Prop mouth open to widest possible position and insert stick to hold it while drying.
- 3. Sprinkle heavy coating of salt over entire head making sure all surface area is covered. (By salting while the head is very wet the salt will cling without difficulty.) Place salted head in the sun to dry for about one week to ten days. (Allow about two to three weeks if head is dried in warm indoor area.)

FINISHING THE JOB

- 1. After the head has been exposed to the sun and all moisture removed, brush off the salt. (An old toothbrush will be helpful in this process.) Wash head lightly in water to remove *all* excess salt residue.
- 2. After head is completely dry, varnish inside and out. (Spar Varnish does an excellent job.)
- 3. To set the eyes, fill the eye sockets about two-thirds full of putty, and while still soft press marbles into place. Remove excess putty with toothpick or similar instrument. A second coat of varnish will give your trophy head a lasting finish.
- 4. Position the head on the mounting board and secure with upholstery tacks. Your trophy is now finished and ready to hang on the wall.



BILL VORISEK of Linesville, Pa., inspects his craftsmanship on two muskellunge caught by Ernie Baker. Few taxidermists specialize in mounting fish.

Fish Stories Never Die—They Just Get Larger

By S. CARLYLE SHELDON

Northwest Regional Warden Supervisor
Pennsylvania Fish Commission

How many times have you located a large trout, bass or nusky in one of your favorite streams, fished for him both ight and day, used live bait, artificial bait of all kinds and in act every known method in your bag of fishing tricks, only to e rewarded with a short strike which caused you to lose him n the first jump? How many of your fishing buddies have ou told, in a secretive manner, about the big one that got away nd did you notice the smirk on their faces when you extended our hands, to describe the length of the monster? Did you tell hem where the fish lived? Heck no, you were restless every ninute until you could get the opportunity to go back and try im again, all by yourself. If you are like most of the fishing raternity, you keep after him, when the barometer is up, when t is down, when the stream is high and when the stream is low nd finally old ironsides makes a mistake. THE STRIKE; vhat a thrill, THE BATTLE; savage and full of fight and at ast your trophy is in the net and helpless.

Unfortunately many stories end here, but more and more rdent fishermen realize the pleasure of having the last laugh nd when their buddies drop in, for an evening of fishing yarns, hey merely gaze up at the wall and say: "THAT WAS THE BIG ONE THAT DIDN'T GET AWAY."

One fisherman who comes to my mind most vividly is Ernie Baker, of Saegertown, Pa., Crawford County. All summer long, Ernie is seen along French Creek, in the vicinity of Saegertown nd Cambridge Springs, Usually, Mrs. Baker is with him and s we pass the time of day, Ernie tells us that he is out after few bass, or walleyes, but we know him well, quickly notice hat those keen eyes are always on the alert for a large swirl or long dark shadow drifting by, under the nearby overhanging ree or bank. Ernie is a musky fisherman, first, last and always. True, he catches his bass and walleyes each summer but when he leaves fall and the heavy frosts arrive you will note a special winkle in Ernie's eyes. Why not? Musky season has arrived 1 the Northwest Region. Mrs. Baker no longer accompanies im. The light tackle is replaced with heavy rod, thirty-pound ne, and in the bait bucket will be found large chubs or suckers which would make a good fish dinner, for most of us, but Ernie s thinking of that big one he saw swirl in August. When you ask im just where the big ones are living, you get a friendly smile, re told that it is a nice day, and nothing more. (This is the ode of the Musky Fishermen's Fraternity and I hope it never hanges.)

The fall of 1962 was no exception for Ernie Baker, as almost aily he was seen along French Creek, and then it happened. Irnie walked into the hardware store, at Cambridge Springs, arrying one of those once in a lifetime trophies, fifty inches nd thirty pounds of fighting musky but there the story did not nd. Three days later, Ernie was displaying a walleye he had aught that day and five days later he again entered the hardware store and displayed another monster musky over fifty inches long and weighing more than thirty-two pounds. These re not the only large fish Ernie has caught in his many years f fishing, but old Lady Luck really smiled on him last fall.

After catching the last fish, Ernie and his friends were ad-



ONE OF THE BEST MUSKY fishermen in Pennsylvania is W. Ernest "Ernie" Baker of Saegertown, Pa. Ernie is right proud of these big musky twins he caught in French Creek last fall. One fish weighed 30 pounds, the other—28 pounds. These mounted specimens are fine trophies in any sportsman's den.

miring its beauty, as French Creek fish are very silvery in color with very few pronounced, bar markings (so characteristic oi muskies living in weedy lakes), and in Ernie's mind an idea was forming. Why not have both fish mounted so that when the fish stories become complicated in the future he could point with pride to the wall and say: "There are two that didn't get away."

After inquiring as to the whereabouts of a good taxidermist, he was directed to William Vorisek, of R. D. 3, Linesville, Pa., a licensed taxidermist who takes great pride in working with fish. There are many taxidermists who do excellent work on animal heads but few who specialize in fish. Bill is one of the few.

He uses the spray method of finishing trophies instead of the hand painted method which is rapidly becoming obsolete. Bill, being an ardent hunter and fisherman himself, takes great pride seeking to make each fish exactly the same as it looked in real life. He can take a badly worn trophy, re-spray it, replace fins and tail and make it look beautiful. A true craftsman, and the cost is not great. Large bass and pan fish can be made into lamps, wall mounts, desk mounts, etc., and will always add a ray of sunshine on those long winter days when we sit around the house with our fishing buddies, and, if we are like Ernie Baker, proudly look up on the wall and say . . . "THE BIG ONES DON'T ALWAYS GET AWAY."

1AY—1963

The FROM THE STREAMS

The following item appeared in the Lock Haven *Express* 60 years ago (1903) column: "A flood in Bald Eagle Creek overflowed the fields near Flemington and George McGregor discovered a big carp floundering around in a field below the bridge. He killed the big fish by striking it on the head with a club. It weighed 12 pounds. There was fine sport fishing for suckers in the Bald Eagle Creek after the big flood and some big catches were made at Flemington."—Northcentral Regional Warden Supervisor John Buck.



While assisting **District Warden James F. Yoder** at the Luzerne County Sportsmen's Show I talked to a little boy about six years of age. I asked him if his daddy took him fishing, what his name was and where he lived. I do not recall now what his name was but where he lived is not hard to remember. His answer to the question as to where he lived was . . . "HOME!"—**District Warden Stephen A. Shabbick** (Wyoming.

Bill Southerton, a northern Wayne County bait dealer, told me that he had put a large number of big golden shiners in a vat to keep them for some anglers who planned to fish the St. Lawrence River. On the morning of one of our coldest nights he found the water supply in his bait vat had been cut off. He went to his pipe and found a snapping turtle had stuck his head in it and couldn't back out. Bill gave the snapper a heave-ho up on the bank and screened the pipe vent. Who needs a turtle cork?

—District Warden Harland F. Reynolds (Wayne).



When stocking Raccoon Park Lake (Beaver) on the 18th of February last, we had to chop through 20 inches of ice to find water in which to stock the trout.—District Warden Clinton E. Iman (Butler and Beaver).



On Bear Creek Reservoir, volunteers cut through $28\frac{1}{2}$ inches of ice to stock Federal trout. On a two-day trout stocking project on Pohopoco Creek, sportsmen cut holes in the ice up to 24 inches.—District Warden Frederick W. Ohlson (Carbon).



I always figured fishermen and duck hunters didn't let weather interfere with their sport but it looks like fishermen are softening up a bit. One Saturday, Game Protector Kriefski and I were on patrol looking for fishermen on the many lakes in this area but because of miserable weather . . . rain, wind and extreme cold, we found very few of the hardy breed. We visited the new Paper Birch Ski Run at Wallenpaupack and were surprised to see men, women and children of all ages cold and soaking wet skiing in this mangy weather seemingly not minding it a bit.—District Warden Joseph E. Bartley (Pike).



In company with Robert Rankin and Howard Doud, Galeton, Pa., officers in the Potter County Anglers Club, we traveled to Pleasant Mount and Bellefonte fish hatcheries. A tour was made at each installation. Both men were impressed with the tour and now plan to build their own hatch house and experiment with the hatching and rearing of their own trout.—District Warden Kenneth Aley (Potter).



LELAND CLOOS, District Warden, Tioga County, Pennsyl vania Fish Commission, shows Girl Scouts Barbara Brown (left) and Sue Kesterke how to handle the larger trout that hopped out of the buckets.

Girl Scouts Help Trout Stocking Despite Snow

Walking through three-foot snow drifts, climbing barbed wire fences and sliding down 20 creek banks were all taken in stride by the Girl Scouts of Daggett who assisted area sportsmen in stocking 1,375 trough in Tioga County streams recently.

The Pennsylvania Fish Commission furnished 700 brook trout which were planted in Bailey Creek, north of Mansfield, 675 brown trout in Seeley Creek in the Mosherville-Daggett areas.

On February 9, I assisted with an ice fishing demonstration at Pinchot State Park Lake (York). Over 350 persons attended the project and showed great interest in this type of angling relatively new for this section of the state. Following the demonstration, many new ice anglers appeared on our southern tie lakes. It was felt that such demonstrations should be extended to conventional types of angling in season. From observation on our lakes and streams I have seen fishermen using equipment and methods highly unlikely to take fish, creating many discouraged fishermen. Instructions in the proper use of equipment, baits and know-how can help many an angler become successful angler.—Southcentral Regional Warden Superviso Harold Cerbin.

#

The Erie Winter Carnival was very successful with fishermer receiving \$1,000 in prizes while fishing in competition on Presquisle Bay February 2-9. A 24-inch northern pike won the toprize. Runner-up was a 15-inch perch which weighed 11 pounds 12 ounces.—District Warden Norman Ely (Erie).

Retiring Fish Commission Employe



WILLARD T. RALSTON

Willard T. Ralston was appointed to the Fish Commission on March 16, 1934 and served as a laborer and equipment operator until his recent retirement. He was born on October 5, 1905, at State College, Centre County, Pennsylvania and was educated in local schools. He is married to the former Helen Julia Bohn. Mr. Ralston, well known to sportsmen in the Huntsdale Hatchery area, has no specific plans for his retirement years.

Appearing in the Wayne Independent, a Honesdale, Pa., newspaper, "Fifty Years Ago" column was this item: "The Groton, Conn., milk receiving plant was sure farmers were watering down their milk as when one of the milk can lids was removed on the platform, a ten-inch brook trout was found swimming around in the can."-District Warden Harland F. Reynolds (Wayne).

Some streams of the Warren County area have fourteen nches of ice cover and the tools for trout stocking these waters probably will include snowshoes and ice augers. One of the local Game Protectors measured 31 inches of snow on top of a turkey eeder back in the brush. One sportsman remarked that maybe ve will have a good tracking snow for the first day of trout eason!-District Warden Kenneth G. Corey (Warren).

At a recent meeting of the Georgetown Conservation Club eld at Wilkes-Barre, the club president, pondering over the ost of one pound of trout delivered to Commonwealth waters, emarked . . . "When you stop to figure it out, after you've aught your first pound, you've had your investment returned ... your fishing license is really a bargain." My comment . . . even fishermen are beginning to notice it!"-District Warden ames F. Yoder (Luzerne).

Ice fishing has been good on French Creek this winter. Conald Cummings and Harold Pealman reported spearing eight arp, the largest weighing 23 pounds, with a total weight of 02 pounds. They also had a dozen nice suckers.—District Varden Raymond Hoover (Crawford).

Harvey Nehf Memorial **Dedication on May 19**

A Memorial to the late Harvey Nehf, former District Warden, Pennsylvania Fish Commission, will be dedicated Sunday, May 19, 1963. The Memorial, in the form of a Wishing Well, was constructed by the Lehigh County Federation of Sportsmen's Clubs and is located north of the concrete ponds at the Le-Hi trout hatchery in the Lehigh Parkway.

Funds for the Memorial were furnished by the county clubs. Much of the material used was donated by interested firms and individuals, with the landscaping arranged and planted by a relative of Mr. Nehf.

Rain date is set for Sunday, May 26,

Penn State Club Outing May 11

The Pennsylvania State Fish and Game Association will hold their annual outing on Saturday, May 11 at Cedar Hollow, Paoli, Pa. Fishing, casting, trap shooting, water boiling, clam bar and other refreshments will feature the all-male outing. The club's youth group elected the following officers for 1963: Lee Schmolke, president; John Sexton, vice president; Nick Matulk, secretary and Russ Mancer, treasurer.



SUCKER FISHERMEN at Shawnee Lake, Bedford County with a nice catch from near the concrete bridge on Route 96 south of Shawnee. District Fish Warden, Williams McIlnay, rear, third from left, said the parking lot at the lake has keen jammed in recent weeks.

The trouble with most people these days is that they want to reach the Promised Land without going through the wilderness.

There is a line on the ocean where you lose a day when you cross it. There's a line on most highways where you can do even better.

Boredom is our chief occupational disease. A highly recommended treatment is fishing.



WINNERS in Harrisburg Hunters and Anglers 25th annual Big Fish Contest, 1962. Front row, kneeling, left to right: Jon Harry Durham, Jay Alan Lenker, George Hinkle and David Miller. Second row, seated, left to right: Harold A. Hock, Richard Charles, Dr. Albert S. Hazzard, Lois Evans and John Bistline. Third row, standing, left to right: Nicholos A. Lammanido, Carl Byrd, R. N. Daugherty, F. P. Mosley, Michael Wagenseller, Don Bailey, S. H. Klinger, Ralph Little and Francis Good.

Fish are entered at Shenk & Tittle, Harrisburg, for the contest, length decides the winners. First and second of each species are awarded prizes and each entry has a chance for a special prize from a drawing. Top winner of the 1962 contest was John R. Egan. The prizes this year were awarded on February 5, 1963, by John Bistline, contest chairman, assisted by Dr. Albert S. Hazzard, former assistant executive director, Pennsylvania Fish Commission. Prizes consist of trophies, certificates, fishing tackle, memberships or cash for second placers.

Queen City Sportsmen'sTrout Rearing Committee

ALLENTOWN, PA.

It gives this committe great pleasure to issue the following report:

Trout stocked in Little Lehigh and Jordan Creeks for annual fishing contests:

12" to 16" — 10,000 16" to 25" — 570

Trout stocked in Little Lehigh, Jordan, Cedar Creeks and the Lehigh River for public stocking:

12" to 16" — 5,800

Included in the above figure are 800 brook trout which were stocked prior to the opening of the trout season.

Excess fingerling trout distributed to sportsmen's clubs for stocking in feeder streams:

Approximately: 10,000

Present inventory in nursery ponds for stocking in the year 1963:

Over 10" — 16,640 Under 10" — 17,500

The above figures do not include 12,886 steelhead trout being raised in the nursery ponds in cooperation with the Lehigh County Fish & Game Protective Association and the Pennsylvania Fish Commission. Some of these fish are due for release this late winter or early spring.

The following is a report of the number of hours put in by interested sportsmen on the work needed to make this operation a success:

Days of Work Women Men Number of hours 89 2 254 1.120

We wish to thank the officials of the City of Allentown for the fine cooperation. Also the Pennsylvania Fish Commission for the fingerling trout furnished by them. And also to all the people who donated of their time, money, and equipment so that this project was once again a success in the past year.

Tom Beidler, Secretary

How to Tie

THE NICOTINE FLY

While fly tying this past winter, I searched among my material anxiously seeking material that would successfully duplicate the color of the caddis larva. Any angler, who has examined this prize trout food, knows the larva has a whitish-gray underbody and a cinnamon-tan colored back with dark brown legs and feelers. The caddis builds a shell of bark, twigs, sand, etc., about his body for protection. However, trout eat case and all, as examining a trout's stomach will attest.

Duplicating the larva with case is difficult and unnecessary, considering the nymph is what the trout wants in the first place. So, I was concentrating on finding the perfectly colored material to imitate the body of the caddis. I couldn't find any and while pondering the dilemma, lit up a cigarette. Puffing away, I happened to notice the stained filter on the cigarette. Eureka! There was my caddis-colored material.

Tying the nymph, wet fly, and dry fly of the caddis fly, using the cigarette filter material as the body, is relatively simple. Take the tying thread to the bend of the hook, and using the process known as "dubbin" dub the filter material to the hook, half-hitch and cement. Bring the material to the position where

you tie on the hackle. On a nymph, no wings are used so tie in a fiery brown soft hackle bringing the hackles under the body representing the caddis's legs. A few hackles can be tied down over the hook eye to represent the antennas if desired. Tie the fly off and cement and there you have a striking resemblance to the natural insect. On wet flies and dry flies, I tie in wood duck flank feathers; on wet flies, I "roll" the feather together and tie on; dry flies, I tie the material in the position called upright divided dry-fly wing. Hook sizes 10 to 16 with size 14 being the average size of the caddis nymph.

For a lack of a better name, I dubbed this fly: the Nicotine Fly. One outstanding aspect of this fly is, if you're hooked to the cigarette weed like me, you shall never run out of material, provided of course you use filter cigarettes. The nicotine odor? Don't worry about it. The nicotine smell could be an added inducement in having the trout hit the fly. After all, nicotine is an important ingredient in fish scents widely used by anglers today. The nicotine fly not only has the look of the caddis but has the smell to boot!

-William Reed

WHEN NOT TO FISH

Several months ago, I was talking to a man who is widely recognized as one of the most accomplished anglers in Pennsylvania.

"All right," I said. "Here is the problem. You have just arrived at a stream or a lake. You immediately observe that the fish are not feeding. No one is catching fish. The water looks absolutely dead. What do you do?"

"Very simple," he said. "I either don't fish at all, or I fish only long enough to confirm that they aren't hitting. Then I drive to another stream or lake, or I wait until the fish begin feeding. But I don't waste much time when the odds are against me."

Having wasted, I should estimate, half a lifetime of trying to catch fish when they refuse to hit, that advice was as valuable a bit of information as I have ever received.

Theoretically, a truly expert fisherman is a fellow who can take fish when everyone else is getting skunked. Some men can do this—up to a point. Often it's a matter of going with the right lure, or placing casts in spots the other anglers are missing.

Yet even the greatest of the experts admit there are times when the best idea of all is to either sit in the shade or seek your sport elsewhere. They know their own limitations. They know when not to fish.

Take the recently-released hatchery brown trout as an example. This fish is accustomed to feeding when fed. He looks to the surface for his food. After he has observed a hundred caddis nymphs and flies drifting past his nose, he gradually gets the idea. Once on the prowl he is an active feeder. He will learn to keep his eye peeled for occasional morsels, the same as as is streambred brethren.

Until he catches on, though, the recently-released hatchery prownie spends the between-hatch periods sulking alongside a submerged rock. The idea is to leave him sulk. Seek your sport elsewhere and come back when he's in a feeding mood.

This is not to say that you should ever leave a stream or a ake without wetting a line simply because you see no signs of feeding activity. Let the fish themselves tell you whether or not they will take a lure.

Give yourself a half hour or so of casting. And experiment with various baits and lures. If your efforts are unrewarded, either call it quits for an hour or try your luck elsewhere. In the long haul, you will conserve energy and take more fish by not bucking the odds.—JIM HAYES



'UH-OH . . . I forgot to tell him the motor is in the back!''

You Asked About It

By W. W. BRITTON

Chief Enforcement Officer, Pennsylvania Fish Comission

The following questions were asked through our mail bag correspondence. If you have a specific question or problem relating to fish laws and regulations, send them by card or letter to Editor, Pennsylvania Angler, Pennsylvania Fish Commission, Harrisburg, Pa.

QUESTION:

If a stream is posted against trespass or fishing, is it legal to wade the stream as long as I do not get out of the water on the farmer's land?

ANSWER:

If the landowner owns both banks of the stream and has it posted against trespassing you cannot legally wade, fish, boat or swim in the water. If he owns only one bank and his property line extends to the middle of the stream, and has trespass signs up on his property and the other half of the stream is open to trespass or fishing, you could wade the other side, or walk the other bank and fish the stream.

QUESTION:

I have my stream posted against fishing and own both banks of the stream and some people stand on a highway bridge and fish from there into the water on my property. Is it legal for them to do that?

ANSWER:

An informal opinion was received from the Attorney General's Office in 1952 concerning this problem. It states: "A bridge on a highway is part of the highway and a highway is an easement for the public to travel over and may not be used for any other purpose." Therefore, such fishing is not legal and the person so fishing may be prosecuted by the landowner for trespass.

QUESTION:

I have my land posted against fishing, but in spite of it some people continue to come on my property and fish. They also throw empty beer cans, paper and other debris along the stream. Can't a fish warden arrest these people for LITTERBUGGING on my property?

ANSWER:

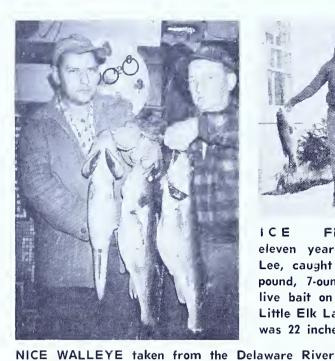
Your only recourse would be for you to have these people arrested for trespassing on posted property. Fish wardens do not enforce the trespass law and neither could they enforce the litterbug law on posted property. The law states the litterbug law may only apply on lands and waters open to public fishing.

QUESTION:

Is it true that permission from the landowner or tenant must first be secured before it is legal to fish on private property on Sunday? When was this law enacted?

ANSWER:

It is true. Sunday fishing on privately owned land may only be done if such permission has first been granted. Fish Wardens are requested to arrest fishermen for this practice if the land is posted against fishing and the fisherman has not obtained permission. No such permission is required if fishing is done on State, Federal or Municipally owned property.





ICE FISHERMAN, eleven year-old Donald Lee, caught this fine 6pound, 7-ounce bass on live bait on a tip-up at Little Elk Lake. The fish was 22 inches in length.



TIP-UP 8-pound, 25-inch this largemouth bass at Lake Sheridan last February. Charles Mikulski of Factoryville caught the big fish on a shiner.



FORTY-FIVE inch muskellunge that weighed 25 pounds, was taken by Van Miller, Waterford, at Lake LeBoeuf on a sucker minnow last fall. The fish was hooked near the lake inlet and put up a good fight on a 12-lb. test line.

-Waterford Leader photo





BIG BLUE CAT, 10 pounds, 27 inches, caught by Lloyd C. Zeiders, Jr., Mifflintown, Pa., at Carter's Hole on the Juniata River west of Mifflintown. The catfish nailed a minnow on a 10-lb. spinning line.

near Narrowsburg (Wayne) last fall by left, Frank

Tokash, and right, Julius Tokash, of Olyphant, Pa.

The fish, almost triplets, weighed 7 lbs., were 27

inches long and caught on lamprey eels.



Clip Here

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Official Publication of the Pennsylvania Fish Commission

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Make check or money order payable to the Pennsylvania Fish Commission Mail to-PENNSYLVANIA FISH COMMISSION HARRISBURG, PA. Cash sent at your own risk. STAMPS NOT ACCEPTABLE. OUTDOOR VETERAN, 75-year-old Al Heath of Brookville, Pa., with a nice catch of trout taken last summer in Jefferson County waters. Mr. Heath has been a great outdoorsman over most of his life and for many years a member of the Fish Committee of the Brookville Sportsmen's Club and a good fly-fisherman.



MUSKELLUNGE taken at York Haven on the Susquehanna River (York) by Edward Weigle, York, Pa. It was a 41-inch, 16-lb. musky angler Weigle took after dark last fall on a Heddon Firetail sonic plug.

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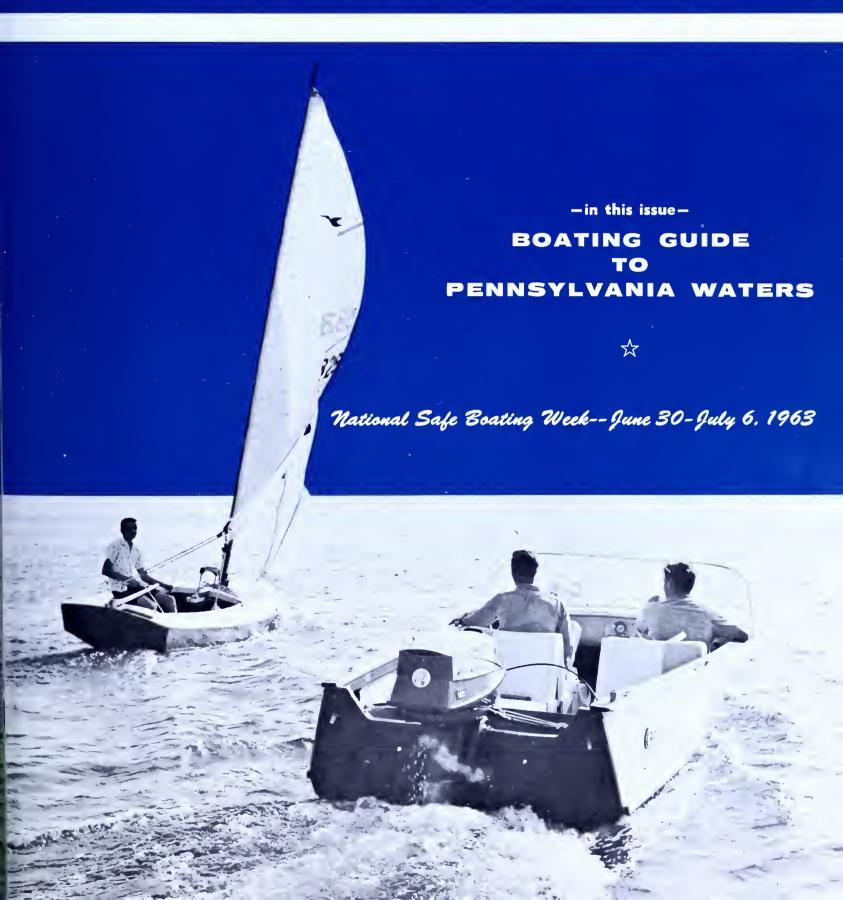


THIS IS YOUR MAGAZINE!

For Pennsylvania Boaters—there's an illustrated, informative section especially designed for you.



Dennsylvania Angler



Smooth Sailing for Pennsylvania Boatmen

Pennsylvania boatmen will be able to use their boats in other states up to 90 days under the provisions of House Bill 889.

This bill proposes to amend the Commonwealth's basic boating law so that it will conform to the Federal boating law, commonly known as the Bonner Act. At the present time Pennsylvania is one of only eight states whose boating laws do not comply with the Federal law.

Under the new law, licensing would be changed from motors to hulls. Fees proposed are \$3 for motorboats 16 ft. and less, and \$5 for motorboats more than 16 ft. in length. Rowboats and sailboats are not included.

The bill would also resolve the complicated problem of administration on the tidal waters of the Delaware River. On April 9, the Navigation Commission for the Delaware River and its navigable tributaries approved this bill by adopting the following resolution:

"The Navigation Commission for the Delaware River and its Navigable Tributaries hereby goes on record as favoring the provisions set forth in HOUSE BILL, NUMBER 889. It is unanimously agreed by the members of this Commission that the requirements regarding licensing and regulation of pleasure motorboats operating on the Delaware River and its navigable tributaries can best be served by the provisions contained in the above referenced House Bill."

The Fish Commission has administered the Pennsylvania boating law since its enactment in 1931. At present the warden staff of the Commission enforces the boating law in conjunction with regular Fish Commission duties. Boatmen and fishermen use the same waters. In fact, 80 per cent or more of Pennsylvania boats are used primarily for fishing. The enforcement of laws and regulations governing boating and fishing by a single agency and one warden force provides economy and efficiency of administration.

This bill has the full support of the Pennsylvania Federation of Sportsmen's Clubs.

The Pennsylvania Fish Commission urges the early approval of this bill. This would make it possible for Pennsylvania boatmen and tourists to take advantage of the reciprocity benefits of this measure at the earliest possible date.

—Albert M. Day
Executive Director
Pennsylvania Fish Commission

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NORTHEAST REGION

H. CLAIR FLEEGER Warden Supervisor 351 Terrace St., Honesdale, Pa., Phone: 253-3724

Fishery Manager TERRY RADER ____ R. D. 3, Honesdale, Pa. Phone: 253-2033

SOUTHEAST REGION

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NORTH CENTRAL REGION

JOHN I. BUCK Warden Supervisor P. O. Box 5, Lock Haven, Pa., Phone: 748-7162 _ Fishery Manager DAN HEYL R. D. 1, Spring Mills, Pa.,
Phone: Center Hall Empire 4-1065

SOUTH CENTRAL REGION

HAROLD CORBIN Warden Supervisor 521 13th St., Huntingdon, Pa., Phone: Mitchell 3-0355

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PENNSYLVANIA FISH COMMISSION COMMONWEALTH OF PENNSYLVANIA

William W. Scranton, Governor

PENNSYLVANIA FISH COMMISSION

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GEORGE W. FORREST, Editor

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Boating Guide to Pennsylvania Waters

By ROBERT G. MILLER

North, East, South or West.

It doesn't matter if your home address happens to be Tusseyville, Oakville or way up in Westfield, natural waterways to cruise for the fun loving, pleasure boating family, are at the most only a two or three hour drive away.

Pennsylvania is fortunate in having several major rivers, all fairly well situated to serve residents from all sections of the Commonwealth, as well as that huge expanse of water to the northwest, Lake Erie, as centers of boating activity.

However having natural waterways is not enough. You've got to provide access to these areas. This just doesn't mean grading a small section of shore line, to facilitate backing a boat trailer into the water, but also involves the establishment of parking facilities, picnic areas and, in some instances, sanitary facilities.

As a result, over the past years, millions have been poured into the "recreational hopper" to emerge as adequate launching sites in just about every one of the 67 counties. Those counties not fortunate enough to be included in this program are, however, only a short drive away.

Most of the launching areas in use today have been established by the Pennsylvania Fish Commission which is constantly seeking more land, to buy or lease, for additional access points. Many others, along with public park programs, have been constructed by the Department of Forests and Waters.

In line with its policy of keeping the recreational interests of the public in mind, Pennsylvania Power & Light Co. maintains several such sites; while Philadelphia and Erie are doing their share to meet the demands of the boating public. Boat clubs throughout the state and private individuals account for the remainder of the boat launching areas, some limited to boat club members only and others operated on a commercial basis.

To provide a thumbnail sketch of what the state has to offer unfold the road map and take an imaginary trip clockwise from some community in south central Pennsylvania. For example let's head west on Rt. 30, or the Pennsylvania Turnpike, from Chambersburg.

Within a few hours you've reached the outskirts of Pittsburgh where you can turn north to Oakmont and the Allegheny, south to the Monongahela or continue west to the Ohio River. Perhaps you would prefer the Beaver River, out of New Brighton, or head north on Rt. 8 to Pymatuning (keep in mind the horsepower restrictions here) or to nearby Conneaut Lake.

Once you've reached this point you're not far from Erie where city owned ramps, plus commercial marinas, can accommodate any size craft. Erie, along with the Presque Isle State Park, is veiled in a historic naval atmosphere of particular interest to the avid boatman and has accommodations galore for the entire family.

Plans are underway for expanding the Presque Isle small boat marina to well over double its present capacity of 500 boats and additional plans have been approved, the Tourist and Convention Bureau of Greater Erie revealed, for the private development of a small boat and yacht facility in the west basin of the public dock.

Continuing the imaginary journey you can head south on Rt. 8 to Union City, then eastward on Rt. 6 to the Allegheny, with access points at Irvine and Warren; then south through Kane and the Bendigo State Park with the nearby Clarion River's east dam.

Not many miles distant is the Sinnemahoning State Park and the George B. Stevenson dam, and southeast of here is Jersey Shore and Williamsport where you can spend a few hours on the west branch of the Susquehanna River. Once past Harvey's Lake, off Rt. 415, you soon reach the Susquehanna's north branch with access areas ranging from Tunkhannock up through North Towanda to Sayre.

Once through Susquehanna and Wayne Counties, the lake country of Pennsylvania, you reach Equinunk, the northern-most access area on the Delaware River. Incidentally, from this point south, there are numerous access areas to the river at such places as Milford, Yardley, Bushkill, Martin's Creek, Philadelphia, on to Essington and Prospect Park.

Not far south of Equinunk is Lake Wallenpaupack, one of the finest boating, bathing, fishing and camping areas in the east. Privately owned marinas line the shore in addition to four well equipped camp sites maintained by PP & L.

To the west is Wapwallopen, on the Susquehanna River; and south is the Schuylkill River with three sites owned and operated by the Dept. of Forests and Waters, plus several other public and commercially operated marinas, all within a short distance from Reading.

The last leg of the trip finds you at Harrisburg with its well used public bathing beach and launching ramp on Allen's Park, a Susquehanna River island between the Market and Walnut Streets bridges; while to the south, between Lancaster and York Counties, are some fine stretches of water for cruising in the vicinity of the Safe Harbor, Holtwood and Conowingo, Md., power dams.

In between the points mentioned are to be found many, many more boat launching facilities which are located on a county-by-county basis in the following listing. It is hoped that the list is as thorough and up to date as is physically possible.

To facilitate matters the following symbols were used to designate the facilities offered at each area: S—surfaced ramp; B—beach type; P—parking available; GO—gasoline and oil; C—charge; N—no charge; PFC—Pennsylvania Fish Commission.



Penna. Fish Commission West Fairview Access

ADAMS COUNTY

No suitable pleasure boating waters.

ALLEGHENY COUNTY

ALLEGHENY RIVER—Tarentum, foot of Lock Street. Tarentum Boat Club lot available for overnight parking. (S-P-GO-N)

Arnold, at foot of 18th Street. High embankment makes launching difficult, parking limited. (B-C)

Springdale, foot of Butler Street. Fair. (B-N)

Logan's Ferry, 2 miles south of New Kensington. (B-P-C)

Oakmont Yacht Club, foot of California Avenue. Limited to club nembers. (S-P-GO-C)

Aspinwall, Highland Boating and Flying Base, ¼ mile north of Aspinwall, on Rt. 28. Marine crane available. (S-P-GO-C)

Aspinwall, Hideaway Harbor, off Rt. 28. (H-P-GO-C)

Sharpsburg, off Rt. 28 after Highland Park Bridge. (B-P-N)

Pittsburgh Boat Club, 300 River Avenue East. Foot of 9th Street Bridge. (B-P-GO-C)

MONONGAHELA RIVER—Pittsburgh. Parking lot off Blvd. of Allies, evenings and Sundays only. (S-P-N)

Lock No. 3, two miles south of Elizabeth. (B-P-N)

OHIO RIVER-McKees Rocks. Sutey marina on the back channel at Brunot Island, downstream from Chartiers Creek. No parking facilities. (S-GO-N)

U. S. Corps of Engineers, Pittsburgh 19, has booklet describing facilities on the Ohio, from Pittsburgh to Cairo, Ill. Fee 25 cents.

ARMSTRONG COUNTY

ALLEGHENY RIVER—Kittanning, on Rt. 422. (S-P-GO-N) Kittanning boat and dock area, one mile north of Rt. 422. North end of Kittanning. (B-P-GO-C)

Mosgrove, 5 mile north of Kittanning, off L. R. 03068. (B-P-N)

East Brady, Cogley's launching area, off Rt. 68, at west side of oridge. (B-P-GO-C)

CROOKED CREEK STATE PARK—350 acres, 6 miles north of Vandergrift on Rt. 66. Picnicking. swimming and camping. (B-P-N)

MAHONING DAM—4 miles north of Dayton, off Rt. 839. (B-P-N)

BEAVER COUNTY

BEAVER RIVER—West Bridgewater, ½ mile from mouth of the Ohio River. Two sites. (B-GO-C)

New Brighton, Rt. 51. (B-GO-C)

Eastvale, Rt. 588. Beaver Falls Boat Club. Ramp—electric hoist vailable for members of any boat club. (S-H-P-GO-N)

BEDFORD COUNTY

JUNIATA RIVER, RAYSTOWN BRANCH — Saxton, t. 26. (B-P-N)

BERKS COUNTY

SCHUYLKILL RIVER—Kernsville pool, Dept. of Forests and Waters project. North of Hamburg, off Rt. 122. No gas or oil service on site but at adjacent facilities. (S-P-N)

Felix pool, DF&W project. North of Reading, near Tuckerton, off Rt. 183. Facilities similar to those offered at Kernsville pool.

Berks Boat Club, 2½ miles north of Reading, off Rt. 122. (B-P-C) Kauffman's landing, 2½ miles north of Reading, off Rt. 122. (B-P-C)

Schuylkill Recreation Center, $2\frac{1}{2}$ miles north of Reading, off Rt. 122. (S-P-GO-C)

Reading boat works, 2 miles north of Reading, Rt. 183. (S-P-GO-C) Hamburg, 2 miles south off Rt. 122, Penna. Fish Commission ramp.

BLAIR COUNTY

No suitable pleasure boating waters.

BRADFORD COUNTY

SUSQUEHANNA RIVER, NORTH BRANCH—Sayre access, 2 miles northeast of Sayre on L.R. 08077. Penna. Fish Commission project.

Terrytown access, at Terrytown on Rt. 187. PFC.

Wysox access, 2 miles south of Towanda on L.R. 08107. PFC.

Athens river bridge (B-N); and Holland's landing. (B-C)

Sheshequin landing, south of Milan, on Rts. 220 and 309. (B-N)

Ulster river bridge, south of Sheshequin. (B-N)

Eagle Eye, 2 miles north of Towanda, east side of river. (B-N)

Standing Stone landing, at Standing Stone bridge, about 6 miles south of Towanda, on Rt. 187. (B-N)

Homets Ferry landing, 5 miles north of Wyalusing, off Rts. 6 and 309, east side of river. (B-N)

Dibbles landing, 2 miles south of Wyalusing, off Rts. 6 and 309, east side of river. (B-N)

Sugar Run landing, south of Wyalusing, Rt. 6. (B-N) Bradford County Outboard Motor Club, Rt. 187. (B-GO-C)

BUCKS COUNTY

DELAWARE RIVER TIDEWATER—Pennsbury Manor. Several road end and beach areas for launching small craft.

Tullytown, Warner's Cove. Access areas posted as private property of the Warner Co. With permission small craft can be launched at Warner's Cove from several gravel and sand beach areas.

Edgerly, Bristol Yacht Club. Private ramp for club members.

Bridgewater and Croydon (Neshaminy Creek): Seyfert & Wright Boat Yard; Snug Harbor Marina; Neshaminy Marina. Facilities are commercially operated with service charge of \$1 to \$2.

Andalusia, adjacent to Mud Island. Bill & Bob's marina. Stone and dirt ramp, plus travel lift. Charge \$2.

Upper Black Eddy, PFC access at Upper Black Eddy.

Yardley PFC access at Yardley Borough.

Bristol PFC access ramp in Bristol Borough.

Neshaminy State Park marina under design by the Dept. of Forests and Waters and scheduled for completion in 1964. Located northeast of Cornwells Heights it will provide surfaced launching ramp, gas and oil, parking. A charge for its use has not been established.

Anchor Boat Club, Bristol, railway ramp and winch but limited to club members. (P-GO)

Ridgewater yard, Cornwells Heights on Totem Road, Rt. 13. (S-P-GO-C)

Bradley boat basin, mouth of Neshaminy Creek, ¼ mile off Rt. 09001, at Croyden. (S-P-GO-C)

Croyden boat yard, at Croyden. Tractor available. (S-P-GO-C)

Penn Yacht Club, Cornwells Heights, off Rt. 09001. (S-GO-C)

Other commercial boat liveries include: Sunny Side boat yard, 845 Totem Rd., Cornwells Heights; Schulte boat yard, 3514 "A" St., Philadelphia; Keystone boat works, Sharon Hill; Bucks County Yacht Club, Croyden R. 1.

Willowbrook marina. Concrete ramp, fuel. Charge \$2.



BUTLER COUNTY

No suitable pleasure boating waters.

CAMBRIA COUNTY

Prince Gallitzin State Park, a Dept. of Forests and Waters project under construction and expected to be completed in 1964. Located just west of Frugality, off Rt. 53, area will include surfaced launching ramp, gas and oil service, parking lot. Charge not yet established.

CAMERON COUNTY

GEORGE B. STEVENSON DAM, SINNEMAHON-ING STATE PARK—Located about 30 miles northwest of Renovo, on Rt. 872. Boating, fishing and picnicking facilities.

CARBON COUNTY

LAKE HARMONY-110 acre lake, popular sailing and motor-boat area. At Split Rock, east of Hickory Run State Park and Pa. Turnpike Northeast Ext. North of Rt. 903. However to control boating for the benefit of lakeside property owners the Lake Harmony Assn. last year decided that a permit be required for launching. Signs indicating no public launching permitted are posted on roads leading to the lake.

CENTRE COUNTY

No suitable pleasure boating waters.

CHESTER COUNTY

No suitable pleasure boating waters.

CLARION COUNTY

CLARION RIVER, PINEY DAM—Clarion, at Toby Creek bridge, Rts. 322 and 68. (S-P-GO-C)

Clarion River PFC access area on State Game Land No. 74 at Mill Creek.

CLEARFIELD COUNTY

SUSQUEHANNA RIVER, WEST BRANCH—Clearfield, 100 yards below the Market Street Bridge. (S-P-GO-N) Boating restricted to immediate area.

CLINTON COUNTY

SUSQUEHANNA RIVER, WEST BRANCH -Lock Haven. Private facilities maintained by Lock Haven Boat Club. At present boating limited due to repairs underway at the Lock Haven dam.

COLUMBIA COUNTY

SUSQUEHANNA RIVER, NORTH BRANCH—Susque Boat Club, at Espy, off Rt. 11. Parking facilities for 50 cars (B-P-GO-C)

Bloomsburg airport landing, off Rt. 11, parking for 100 cars (B-P-GO-N)

Catawissa landing, at Catawissa, off Rt. 42. (B-P-GO-N)

CRAWFORD COUNTY

CONNEAUT LAKE—West of Meadville, on Rt. 6. Fish Commission access area at northwest corner of lake, off Rt. 618. (B-P-N)

Stream fed and labelled "Pennsylvania's Perfect Playground," Conneaut Lake is approximately three miles long and a mile or two wide with a depth of about 90 feet. Good fishing on weekdays for muskie, bass, walleye, northern pike and pan fish but boating traffic is heavy on weekends. Along the shore line are such commercial access areas as Reimann's, Conneaut Lake Navigation Co., Klingensmith Boyles, Mastadon, Nye's, Midway boat sales and Shore Acres motel Most provide (S-P-GO-C).

Several other lakes and streams in Crawford County offer excellent boating particularly for the fisherman since there are restrictions or the horsepower of outboard motors. They include:

PYMATUNING RESERVOIR —Located on the Pennsylvania-Ohio state line this body of water is primarily a wildlife refuge area although fishing is permitted in certain areas with a 6 hp outboard limit. Launching permits are required. There are numerous launching areas along the 70 miles of shore line with major access areas at: Espyville, on Rt. 285 (GO-P); and at Jamestown, at south end of lake, Rts. 58 and 322. (B-GO-P-N)

Drakes Mill Dam PFC access, 2 miles northwest of Cambridge Springs on Rt. 99.

CANADOHTA LAKE—(10 hp limit)—West side of lake are Macresson beach (B-P-GO-N); Hawthorne beach, public park (P-P-GO-N); Lloyd's store, below Cold Springs Park (B-P-GO-N); North End public landing (B-P-N). Canadohta Lake PFC access, 1 mile north of Lincolnville on Legislative Route 20139.

FRENCH CREEK AND CUSSEWAGO CREEK—both offer excellent fishing opportunities but the use of outboard motors is limited to 5 hp. Detailed locations of access sites are contained in the Pennsylvania Fish Commission's publication "Fishing and Boating in Pennsylvania."

CUMBERLAND COUNTY

SUSQUEHANNA RIVER—West Fairview, off Rt. 11. PFC access area at the Conodoquinet Creek. (S-P-N)

Harrisburg marine supplies, southwest end of Walnut Street bridge Wormleysburg. Has railway ramp plus (S-P-GO-C)

Harrisburg seaplane base, Wormleysburg. S.W. end of Walnu St. Bridge, north side. (S-LP-GO-C)

DAUPHIN COUNTY

SUSQUEHANNA RIVER—Harrisburg to Millersburg—Rive conditions not quite suitable for outboard boating. Shallow areas and rocky bottom make this stretch more suitable for air boats and small fishing craft. Access areas, in addition to the Harrisburg maintained beach and launching area off the old river park island, just off the Walnut and Market Streets bridges, are as follows:

Millersburg PFC access on Rt. 14, west end of Moore Stree

Highspire Boat Club, at Highspire. Limited to members.

Halifax boat landing, Rts. 14 and 225. (S-P-N)

Tri-County Boat Club, 2 miles south of Middletown, off Rt. 441 (B-P-C-GO)

Elizabethtown landing, 4 miles south of Middletown, off Rt. 441 Parking limited. (B-N)

DELAWARE COUNTY

DELAWARE RIVER TIDEWATER—Essington seaplane pase, adjacent to Little Tinnicum Island, railway and stone ramp. Fuel. Service charge \$2.

Essington, Governor Printz Marina, travel lift only. Fuel. Service harge \$3.50.

Essington Yacht Yard, 2nd and Wanamaker Aves; Ross Boat Yard, 2nd Ave., Essington; Corinthian Yacht Club of Philadelphia, 2nd Ave. and Taylor, Essington; 7th Ave. Bridge Boat Yard, 7th Ave. and Chester Creek; Anchorage Marine Basin, Front and Jansen Sts., Essington; Essington Yacht Club.

DARBY CREEK-Prospect Park Marina, stone ramp, owner perated. Fuel available. Service charge \$2.

Willowbrook Marina, concrete ramp, fuel Service charge \$2.

CHESTER CREEK-Fred Brown boat yard, travel lift. Service harge \$2.

Chester West End Boat Club. Crushed stone ramp for members

ELK COUNTY

CLARION RIVER, EAST BRANCH DAM -Eleven niles northeast of Johnsonburg, off L.R. 24021, Bendigo State Park. (B-P-N) Dam provides 1,370 water surface acres for pleasure boatng and skiing.

ERIE COUNTY

-AKE ERIE—For the pleasure boat owner Lake Erie offers just bout the ultimate in pleasure boating with facilities galore—all proided by the City of Erie through the Erie Park and Harbor Comnission, the Pennsylvania Fish Commission and the Department of Forests and Waters.

Erie city launching sites: foot of Chestnut Street, a free hard suraced ramp with parking for cars and trailers; and the public dock, oot of State Street which caters to larger boats. Hoist available. ee based on size of boat.

McAlister's Marina, State Street public dock, makes available boat talls on a rental basis. Those wishing to dock boats for an entire eason contact the Erie Park and Harbor Commission, Presque Isle state Park.

Presque Isle affords at least two public launching ramps. Both are lard surfaced ramps with parking facilities. One is located at Niagara Corridor, off beach 6; while the other provides access to Misery Bay, orth of the Perry Monument at the lagoon entrance.

Also there is Leo's boat livery, near the park office at the West nd of the peninsula; hoists and mooring available on the peninsula eparating Duck Pond from Erie Harbor, with a fee based on size f craft; and Denmark's boat livery in the Lagoon, near the Misery Bay entrance.

At present arrangements are underway for the construction of a ew launching site on the south side of the Erie Harbor entrance, ear the Wayne Block House.

West of Erie, off Rt. 5, are such launching areas as: PFC ramp, 4 acres, at the mouth of Walnut Creek (S-P); another just west of ake City, at mouth of Elk Creek, privately owned, launching fee, 2 per day (B-P-GO); and small craft can be accommodated at a each launching area near the extreme western end of Erie County, t Raccoon Creek. A fee is charged for launching with parking facilities vailable.

Options have been taken on 17 acres of land at the extreme eastern nd of the county to provide another access area to Lake Erie just eyond Twenty Mile Creek.

Also in the county access areas have been provided to Edinboro ake, LeBoeuf Lake and North East Borough Bull Reservoir. Howver outboard motors are prohibited at these lake sites.

FAYETTE COUNTY

YOUGHIOGHENY DAM-Located between Fayette and Somersct Counties. A flood control reservoir (U. S. Army Engineers) with 3,000 acres of water for boating in Pennsylvania and Maryland. Launching facilities at: Somerfield, 2 miles west of Addison, off Rt. 40. (S-P-GO-N) Confluence, one mile southwest of Confluence, off Rt. 281. (B-P-N) Jockey Hollow, west of Addison, off Rt. 40. (S-P-N)

FOREST COUNTY

ALLEGHENY RIVER-Tionesta Dam, one mile east of Tionesta, (S-P-N)

Tionesta Fish Cultural Station, one mile north of Tionesta, Rt. 62. (S-P-N)

West Hickory, east end of West Hickory bridge, Rt. 62. (S-P-N)

FRANKLIN COUNTY

No suitable pleasure boating waters

FULTON COUNTY

No suitable pleasure boating waters.

GREENE COUNTY

MONONGAHELA RIVER—Rice's Landing, one mile east of Dry Tavern, off Rt. 88. (B-P-N) Scott Harbor, at Point Marion, off Rt. 119. (S-P-GO-N)

HUNTINGDON COUNTY

JUNIATA RIVER, RAYSTOWN BRANCH - Westbrook marina, Yocum boat house, Filson anchorage and Suters landing, all about 7 miles south of Huntingdon, on L.R. 31032 (S-P-GO-C)

Pennsylvania Fish Commission ramp, Raystown, on Raystown Dam, near Hesston, off Rt. 26.

INDIANA COUNTY

CONEMAUGH RESERVOIR—Six mile long, 300 acre body of water west of Blairsville, off Rts. 22-119.

JEFFERSON COUNTY

No suitable pleasure boating waters.





JUNIATA COUNTY

JUNIATA RIVER—Pennsylvania Fish Commission access area, 21/2 miles east of Mexico, off Rts. 22 and 322. (B-P-N) PFC area (Walker) at Mexico, Rts. 22 and 322. (S-P-N) Mifflintown access, ½ mile north of Mifflintown. Thompsontown access, 3/4 mile south of Thompsontown.

LACKAWANA COUNTY

No suitable pleasure boating waters. However access available to Lake Sheridan, Crystal Lake and Chapman Lake, north of Montdale.

LANCASTER COUNTY

SUSQUEHANNA RIVER—Three power dams in Pennsylvania and Maryland sectioned the river into three widely used pleasure boating areas. They are: Conowingo Lake, formed by the Conowingo Dam; Lake Aldred, by the Holtwood Dam; and Lake Clarke, by Safe Harbor Dam.

Lancaster County launching sites, from north to south, include: Bainbridge, foot of Race Street. (S-P)

Marietta Boat Club. Limited to members. (S-P) There are areas where small craft can be launched from shore although this is difficult during low water.

Columbia, Ream landing just north of Walnut Street. Limited parking facilities available. (S-C) Other launching areas privately owned or maintained by boat clubs.

Pequea, Lawrence S. Prangely public ramp, just off Rt. 324, at mouth of the Pequea Creek. (S-P-C)

Albright's marina, on opposite side of the Pequea Creek, offers hoist and surfaced ramp. Gasoline, oil and repairs available. Service charge use of facilities.

Outboard Boat Club has mooring and launching facilities, plus parking, along the Pequea Creek limited to members only.

Pequea Boat Club has access to the creek plus floating docks and mooring area on the Susquehanna River, just south of the Pequea Creek. Use limited to members.

Fishing Creek, owned and operated by C. Merle Murphy, below Holtwood Dam on Lake Aldred. (B-P-GO-C) Hoist available out of boat house at the mouth of Fishing Creek. Grocery store and fishing supplies available nearby.

Peach Bottom, at mouth of Peters Creek. (B-P-GO-C) Formerly known as Fowler's, now owned and operated by Murphy. Mooring available over the summer months. Fishing good to excellent.

LAWRENCE COUNTY

No suitable pleasure boating waters.

LEBANON COUNTY

No suitable pleasure boating waters.

LEHIGH COUNTY

LEHIGH RIVER -Allentown, 3 launching sites at Hamilton Street dam; Frick Boat Club landing north of dam (S-P-GO-C) River Front Park (B-N); Catasauqua Road. (B-N)

Cementon, south end of Cementon dam only. Adjoining lanc leased to boat club and limited to members. (B-P-C)

Northampton, north end of Cementon dam, facilities available to the public. (B-P-N)

Treichler's Dam, 4 miles south of Walnutport, off Rt. 145. Limited to boat club members. (B-P)

LUZERNE COUNTY

SUSQUEHANNA RIVER, NORTH BRANCH—Wap wallopen, Rt. 29, maintained by Berwick Boat Club. (S-P-C) Fish ing good for bass, pike, pickerel and catties.

HARVEY'S LAKE-Northwest of Wilkes-Barre off Rt. 415 Link's landing and Sunset marina. (B-P-GO-C)

SYLVAN LAKE—15 hp limit—Pa. Fish Commission acces area, 1½ mile south of Sweet Valley on L. R. 40068. (B-P-N)

LYCOMING COUNTY

SUSQUEHANNA RIVER, WEST BRANCH—Williams port, Arch Street bridge, north shore of river. (B-P-N)

West Branch Motor Boat Club, Duboistown, at foot of Summe Street, off Rt. 654. (S-P-GO-C)

Maynard Street Boat Club, north shore at foot of Maynard Stree bridge, Williamsport. (B-P-GO-C)

Muncy Boat Club, 3 miles east of Muncy, north shore of river off Rt. 14. (B-P-C)

Jersey Shore Boat Club, at Antler's Club, 3 miles west of Williams

port, Rt. 220. (B-P-C)

McKEAN COUNTY

No suitable pleasure boating waters

MERCER COUNTY

STONEBORO LAKE—Ramp and picnic area provided fo owners of small craft only. Off Rts. 62 and 322. (S-P-C)

MIFFLIN COUNTY

JUNIATA RIVER-Riverside trailer court, one mile east o Lewistown, on Rt. 22. (B-P-GO-C)

White Haven, at Newton Hamilton, L. R. 103. (B-P-C) Linn boat livery, Newton Hamilton, L. R. 103. (B-P-GO-C)

MONROE COUNTY

DELAWARE RIVER-Pardee's beach, about 4 miles north o Shawnee-on-the-Delaware. (B-P-C)

BRADY'S LAKE-Pa. Fish Commission access area, 9 mile northeast of Blakeslee, off Rt. 940. Docking and sanitation facilities (B-P-N)

GOULDSBORO LAKE-Pa. Fish Commission access area, be tween Monroe and Wayne Counties. Rt. 611. Facilities similar to thos at Brady's Lake.

MONTGOMERY COUNTY

SCHUYLKILL COUNTY-Norristown, foot of Haws Ave

Valley Forge Park, near Betzwood, on Rt. 363. (B-P-N)

MONTOUR COUNTY

SUSQUEHANNA RIVER, NORTH BRANCH—D a nille Boat Club, at Danville, off Rt. 11. Charge for parking. Ferry Street landing, at Danville. (B-P-N)

NORTHAMPTON COUNTY

EHIGH RIVER — (See Lehigh County listing)

Three Mile Boating Club, one mile north of Treichler's on Rt.

Northampton Boat Club, at Northampton. (S-P-N)

latasauqua Boating, Skiing and Recreational Club, at Catasauqua, t. 145. (B-P-C)

Bethlehem Boating Club ramp, at Hopeville, about 3 miles east f Bethlehem, alternate Rt. 22. (S-P-C)

DELAWARE RIVER—Penna. Power & Light Co. launching reilities and picnic area at Martin's Creek, about 10 miles upriver com Easton. Open to the general public, free of charge, and no registra-on required. Besides ramp, site provides picnic tables and sanitary reilities.

NORTHUMBERLAND COUNTY

USQUEHANNA RIVER, WEST BRANCH—Watson-

own boat landing, at Watsontown, off Rt. 405. (B-P-N)

Montandon landing, west of Montandon, off Rt. 14. (B-GO-P-N) Milton Boat Club, at Milton, off Rt. 14. (B-P-GO) Private.

USQUEHANNA RIVER, MAIN BRANCH—Idle Hour cat Club, Sunbury, off 14. Parking available. (B-GO-N)

Northumberland Boat Club, opposite Northumberland, Rt. 11.

ee \$1. Parking for 75 cars. (B-GO-C) Herndon landing, off Rt. 14. (B-P-N)

Dalmatia landing, off Rt. 14. (B-P-N)

PERRY COUNTY

UNIATA RIVER—Pa. Fish Commission access area, 2½ miles with of Millerstown, off Rts. 22 and 322. (B-P-N)

Pa. Power & Light Co. area ½ mile east of Newport, Rts. 22 and 322.

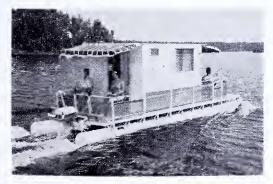
USQUEHANNA RIVER—Maple Grove Park, Rts. 11 and 5, between Liverpool and Montgomery Ferry.

PHILADELPHIA COUNTY

PELAWARE RIVER—Linden Ave. and 9100 N. Delaware ve., public concrete launching ramp with adjacent parking lot. amp large enough to accommodate five boats on trailers at same me. No charge. Owned and maintained by city of Philadelphia.

Tacony-Palmyra bridge, Charles Weidman boat yard. Overhead ft. Service charge \$2.

Sandy Beach, south end of International Airport. City owned and gravel beach. Use available at owner's risk.



PIKE COUNTY

DELAWARE RIVER—Bob Blood's, Rts. 6 and 209. (S-P-C) Andersons. (S-P-C)

Riverview, about one mile north of Bushkill, Rt. 209.

Pa. Fish Commission Bushkill access area, north of Bushkill, off Rt. 209. (S-P-N)

LAKE WALLENPAUPACK—Located in the center of the Commonwealth's finest eastern resort centers, the lake was built by the Pa. Power & Light Co in 1925 for storage purposes. It lies on the borderline of Pike and Wayne Counties.

PP & L, in line with its policy of keeping in mind the recreational interests of the public, has since 1959 established and maintains four lake-shore camp sites each with its own launching areas, parking, sanitary and laundry facilities.

Three such camp sites are located off Rt. 507, in Pike County. They include Ledgedale, at the extreme south end of the lake, built in 1959; Wilsonville, at the northeast end, in 1960; and Ironwood Point, northeast of Ledgedale, in 1960. The fourth area, in Wayne County off Rt. 590, is the Caffrey Park which was started in 1961.

In addition to the PP & L sites, also located along the 53 miles of shore line, much of it wooded, are such commercial public launching areas as:

Lake Harbor (B-P-GO-S-C); White Beauty View (S-B-P-GO-C); Pep's (B-P-GO-C); Lake Wallenpaupack Yacht Club, members only; Seeley's (B-P-GO-C); Baker's (B-P-C); Landis Landing, near Greentown, off Rt. 507 (B-P-GO-C).

POTTER COUNTY

No suitable pleasure boating waters.

SCHUYLKILL COUNTY

SCHUYLKILL RIVER—Auburn pool, between Schuylkill Haven and Landingville, a Dept. of Forests and Waters project offering surfaced launching ramp and parking facilities. Gas and oil available on adjacent privately owned facilities.

Landingville public ramp, off Rt. 122. (B-P-N)

Auburn Motor Boat Club, near Auburn. Private ramp but its use is permitted by the public for a small fee. (B-P-C)

SNYDER COUNTY

SUSQUEHANNA RIVER—Launching facilities available at Port Treverton, Rts. 11 and 15.

SOMERSET COUNTY

YOUGHIOGHENY FLOOD CONTROL RESERVOIR

-See Fayette County listing.

SULLIVAN COUNTY

No suitable pleasure boating waters.

SUSQUEHANNA COUNTY

SUSQUEHANNA RIVER, NORTH BRANCH— Great Bend access area, Pa. Fish Commission project, one mile east of Hallstead, Rt. 11 (S-P-N)

LAUREL LAKE—A 70-acre body of water off Rt. 29, on L.R. 57074, at Lawsville. (B-N)

Forest Lake—A 40-acre lake on Rt. 944, northwest of Montrose. (B-N)



TIOGA COUNTY

No suitable pleasure boating waters.

UNION COUNTY

SUSQUEHANNA RIVER—See Northumberland County listing.

VENANGO COUNTY

ALLEGHENY RIVER—Emlenton, off Rts. 38 and 208. (B-P-N)

Kennerdell, 5 miles west of Rockland, off Rt. 257 on T.R. 60011. (B-P-N)

Franklin, foot of Elk Street, Pa. Fish Commission access area. (B-P-N)

Oil City, one-half mile southwest of city, Rt. 62. (B-P-N) Pa. Fish Commission project.

President access area, Rt. 62. One-half mile south of Hunter Bridge. Pa. Fish Commission (B-P-N)

WARREN COUNTY

ALLEGHENY RIVER—Pa. Fish Commission access area 2 miles north of Tidioute, Rt. 62. (B-P-N)

Tidioute, Rt. 127. (S-P-N)

Irvine, Rt. 6. (S-P-N)

Warren, off Rts. 6 and 62. (S-P-N)

Federal forestry picnic area, Rt. 62. (S-P-N)

Starbrick PFC access, River Road, Starbrick.

WASHINGTON COUNTY

MONONGAHELA RIVER — East Monongahela, Manseni dock, south on Rt. 31. (S-P-GO-C)

Millsboro, Ten Mile Yacht Club at mouth of Ten Mile Creek, Rt. 88. (B-P-GO-N)

California city boat dock, Rt. 88. (S-B-P-N)

Charleroi Boat Club, Rt. 88, at Charleroi. (B-P-GO-N)

Speers PFC access in Speers.

WAYNE COUNTY

LAKE WALLENPAUPACK — See Pike County listing for launching areas in Wayne and Pike Counties.

DELAWARE RIVER—Buckingham access area, Pa. Fish Commission, ¹/₂ mile north of Equinunk, on Rt. 191. (S-P-N)

Narrowsburg access area, Pa. Fish Commission, opposite Narrowsburg, N. Y., on Rt. 106. (S-P-N)

WESTMORELAND COUNTY

ALLEGHENY RIVER — Arnold Boat Club, at Arnold (B-P-GO-C)

LOYALHANNA DAM—Small craft facilities at New Ale andria, Rt. 22. (B-P-N)

WYOMING COUNTY

SUSQUEHANNA RIVER, NORTH BRANCH—Lace; ville, Rt. 6. (B-P-N)

Rocky Forest, Rt. 6 to Laceyville, west on L.R. 65041. (B-P-N) Mehoopany, Rt. 87. (B-P-C)

Vosburg, Rt. 6 to Russel Hill, west on T.R. 506. (B-P-C)

Tunkhannock, Rts. 6 and 29. Two launching sites, one private operated (B-P-C); other one mile south of Tunkhannock, Pa. Fis Commission access area, Rt. 309 (B-P-N)

South Eaton, Skrevensky's Grove, take L.R. 65005 south fro Tunkhannock. (B-P-N)

Falls, on Rt. 92. (B-P-N)

Lake areas include Lake Winola, off Rt. 307 (B-P-N); and Lak Carey, off Rt. 29. Some areas free, others have service fee. All (B-P

YORK COUNTY

SUSQUEHANNA RIVER—Conowingo Lake.

Boeckel's landing, one mile south of Sunnyburn, off Rt. 7 (B-P-GO-C)

Lake Aldred—above the Holtwood Dam.

Gambler's, near York Furnace, south of Rt. 124 below India Steps Museum. (B-P-GO-C)

Penna. Power & Light Co. ramp and picnic area at Otter Cree Lower Chanceford Twp., along Rt. 124, near York Furnace. N charge for use of facilities. (S-P-N)

Lake Clarke-above Safe Harbor Dam.

Safe Harbor launching ramp and picnic area, south of Long Leve off Rt. 624 and Bull Run Road. Surfaced ramp and sanitary facities. Open to general public during daylight hours.

Welsh, Resh and Wallick boat yards along Rt. 624, in Long Leve Ramps and hoists available to handle any size boat. All provide (B-P-GO-C).

Wrightsville, Pa. Fish Commission access area on Rt. 624, ju south of Lancaster-York intercounty bridge. (B-P-N)

Accomac, one-quarter mile south of Accomac and north of Wrightsville, off T. R. 783. Favorable for small fishing craft onl (B-P-GO-C)

Goldsboro, Pa. Fish Commission site. Rt. 262. (S-P-GO-N) New Cumberland, one-half mile south off Rt. 111. (B-P-N)

NOW IS THE TIME TO MAKE PLANS FOR SUMMER CRUISE

If you are thinking about doing some outboard cruising this summer, you'll have more fun if you take the time to plan. Often, it's the little extras that make the ig difference in the success of the cruise.

Your first consideration should be your equipment. Vhile almost any outboard boat is suitable for cruising n selected waterways, it doesn't make sense to cruise asheltered offshore waters in a 15-foot runabout. But with that same small boat you can have all kinds of un cruising protected inland waterways, such as a river.

Time is another consideration. Unless you want to take it a combination automobile-boat trip, don't select spot so far away that most of your time will be spent in the road getting to and from the cruise area. There are probably several excellent areas located within a ay's drive of your home.

Once you have picked the general area, select the pecific waters you want to cover. But don't restrict ourself with a schedule that is too tight. You will find ruising is more fun if you allow enough leeway for taking frequent stops at various points of interest. No oubt you'll find plenty of them.

Try to obtain detailed charts of your cruise area before leaving home. Mark the spots you want to visit. Check for fuel and supply stops. If navigation locks will be encountered, allow extra time for locking through. If you plan to sleep aboard or set up camp on the shore, you need not be concerned with lodging facilities. Otherwise, check for the availability of suitable water front motels or cabins along the route.

Don't forget the kids. They can get pretty rambunctious on a long cruise if they do not have something to occupy their time. Keep them interested by pointing out scenery and wildlife. Explain the significance of marker buoys, locks, bridges and commercial vessels as they are encountered. Take along a few of their favorite games. Of course, youngsters are always eager to take a turn at the wheel. And remember, when kids are aboard, frequent stops are a must.

An outboard cruise, whether it be an extended twoweek trip or a weekend jaunt, is an enjoyable and rewarding break from routine living as well as a refreshing experience. A little bit of advance planning can make it even better.

OUTBOARD CRUISING is a favorite family pastime. Your boat need not be large to enjoy cruising on inland waterways. When youngsters are aboard, keep them occupied by explaining points of interest along the shore line.





THE WHITE HOUSE

National Safe Boating Week, 1963

By the President of The United States of America

A Proclamation

WHEREAS recreational boating is playing an increasingly important part in the lives of millions of Americans who look to it as a means of maintaining physical vigor and mental alertness; and

WHEREAS the resulting increased use of our waterways has caused a corresponding increase in safety problems; and

WHEREAS this healthful outdoor activity can be enhanced and loss of life and property reduced by adherence to safe boating principles; and

WHEREAS the Congress of the United States, in recognition of the importance of such safe boating practices, by a joint resolution, approved June 4, 1948 (72 Stat. 179), has requested the President to proclaim annually the week that includes the Fourth of July as National Safe Boating Week.

NOW, THEREFORE, I, JOHN F. KENNEDY, PRESIDENT OF THE UNITED STATES OF AMERICA, do hereby designate the week beginning June 30, 1963, as National Safe Boating Week.

In pursuance of the objectives of this Proclamation, I urge all persons, organizations, and Governmental agencies interested in recreational boating and safety afloat to publicize and observe National Safe Boating Week.

I also invite the Governors of the States, the Commonwealth of Puerto Rico, and other places subject to the jurisdiction of the United States to join in this observance.

IN WITNESS WHEREOF, I have hereunto set my hand and caused the Seal of the United States of America to be affixed.

DONE at the City of Washington this twenty-sixth
day of February in the year of
our Lord nineteen hundred and
sixty-three, and of the Independence of the United States of
America the one hundred and

eighty-seventh.

JOHN F. KENNEDY

By the President:
DEAN RUSK
Secretary of State.





WHEN TWO BOATS running in opposite but parallel direction meet, the drivers should keep to the right, the same as the would if driving an automobile.

WATER SAFETY

The lakes and streams of Pennsylvania furnish recreation and fun for thousands of boaters, water skiers swimmers and fishermen every summer season.. but, they are also the scene of many unnecessary drownings. The Fish Commission certainly encourage you to thoroughly enjoy water recreation but certain rules of water safety must be observed if you do no wish to wind up as a statistic.

Boats—Common Sense Afloat

OVERLOADING. Don't overload a boat. Pay at tention to the manufacturer's load capacity limits.

OVERPOWERING. Don't overpower a boat. At overpowered boat is hard to control. Respect the manufacturer's horsepower limits recommendations.

LOAD DISTRIBUTION. Distribute the load evenly. A boat improperly loaded is hard to control.

STANDING IN A BOAT. Don't stand in a narrow round bottom boat. And when you change seats, keep low and to the center with both hands on the gunwales

LIQUOR. Don't drink when you drive a boat. Oper ating a boat while intoxicated is a serious offense.

WEATHER. If you're not sure about the weather don't go out. If you are out and the weather turns bad come in.

SKIERS AND SWIMMERS. Give them a wide berth. Make it a practice to stay away from beaches.

HOT RODDING. It's dangerous. You wouldn't be a hot rodder on the street in front of your home, don't be one on the water.

FIRE. Be careful with fuel. Don't smoke aroung gasoline. Keep your boat well ventilated.

FIRST AID. It's always a good practice to carry a first-aid kit and manual. Learn how to give artificial respiration.

WAKES. Wakes can cause damage and trouble. Slow down when passing small boats. Dead slow speed is recommended in channels and anchorages.

AVOID SHARP TURNS. Never make a sharp turn at high speed.

ASSISTANCE. When you see a man in difficulty with his boat give him a hand.

HEAD INTO WAVES. If waves are high head your boat at an angle toward the waves at slow speed.

Water Skiers

The law says operators of boats pulling water skiers shall be at least fourteen (14) years of age, and all such operators shall have at least one (1) other person in the boat fourteen (14) years of age or older, unless the boat is equipped with a wide-angle rear-view mirror affording the operator an unobstructed reflected view of the skier at all times.

Learn all the safety measures of your favorite sport and know how to observe them before you venture into deep water. By all means, do not get behind a boatman in whom you have the least doubt. Your confidence in him will make your skiing more fun and relaxation. ALWAYS WEAR A LIFE PRESERVER! There is one designed for every type water sport. Today, they are attractive and comfortable, their greatest attraction is the fact they might save your life!

Swimming

The Pennsylvania Fish Commission joins other safety organizations urging bathers to swim only in designated waters. Watch the signs and if they tell you swimming is prohibited, be the first to realize there is reason for it. Swimming areas in park lakes and other streams where there is no life guard on duty are usually roped off, with floats at intervals to indicate where it is safe.

. . . NEVER STRAY BEYOND THAT ROPE!

The Red Cross suggests these water safety hints: DON'T GO SWIMMING ALONE!

Wait an hour or two after eating before you go swimming.

Don't stay in the water after you are tired.

Don't overestimate the distance you are able to swim. River currents are dangerous . . . don't try to buck

Use the safest method possible to rescue a person in trouble in the water . . . use a boat or throw some floating object. When a person accidentally falls into the water he should remove all clothing possible before trying to swim out.

In all unsupervised waters where bathing is permitted, life preservers should be worn by all persons unable to swim.

For a copy of Pennsylvania's Motorboat Rules and Regulations, write the Pennsylvania Fish Commission, South Office Building, Harrisburg, Pa.

Wise use of leisure time—to which outdoor recreation can contribute so much—is of enormous importance in maintaining our strongest weapon in even a space age arsenal—the American character.—Laurance S. Rockefeller, Recreation.

Pennsylvania Sunrise-Sunset Table

The following times of sunrise and sunset are based on the 77th Meridian which runs north and south through Eastern Adams County, Harrisburg Airport, Williamsport and Eastern Tioga County. Times shown are EASTERN STANDARD TIME. Boaters and skiers in localities east or west of the 77th Meridian should note there is a variation in sunrisesunset times from those shown (as much as 8 minutes earlier in Philadelphia and 12 minutes later in Pittsburgh). Check your local weather station for correct information. Read and observe your motor boat rules and regulations.

EASTERN STANDARD TIME

	JUNE		JULY		AUG.		SEPT.	
DAY	Rise	Set	Rise	Set	Rise	Set	Rise	Set
	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.	A.M.	P.M.
1	4 40	7 31	4 41	7 41	5 05	7 22	5 34	6 40
2	4 40	7 31	4 42	7 41	5 06	7 21	5 35	6 38
3	4 39	7 32	4 42	7 41	5 07	7 20	5 36	6 36
4	4 39	7 33	4 43	7 40	5 08	7 19	5 37	6 35
5	4 39	7 33	4 43	7 40	5 09	7 18	5 38	6 33
6	4 38	7 34	4 44	7 40	5 09	7 16	5 39	6 32
7	4 38	7 34	4 45	7 40	5 10	7 15	5 40	6 30
8	4 38	7 35	4 45	7 39	5 11	7 14	5 41	6 28
9	4 38	7 36	4 46	7 39	5 12	7 13	5 42	6 27
10	4 37	7 36	4 46	7 38	5 13	7 11	5 43	6 25
11	4 37	7 37	4 47	7 38	5 14	7 10	5 44	6 23
12	4 37	7 37	4 48	7 38	5 15	7 09	5 45	6 22
13	4 37	7 38	4 49	7 37	5 16	7 08	5 46	6 20
14	4 37	7 38	4 49	7 37	5 17	7 06	5 47	6 18
15	4 37	7 38	4 50	7 36	5 18	7 05	5 48	6 17
16	4 37	7 39	4 51	7 35	5 19	7 04	5 49	6 15
17	4 37	7 39	4 52	7 35	5 20	7 02	5 50	6 13
18	4 37	7 40	4 52	7 34	5 21	7 01	5 51	6 12
19	4 37	7 40	4 53	7 33	5 22	6 59	5 52	6 10
20	4 38	7 40	4 54	7 33	5 23	6 58	5 53	6 08
21	4 38	7 40	4 55	7 32	5 24	6 56	5 54	6 07
22	4 38	7 40	4 56	7 31	5 25	6 55	5 55	6 05
23	4 38	7 41	4 57	7 30	5 26	6 54	5 55	6 03
24	4 39	7 41	4 58	7 30	5 27	6 52	5 56	6 02
25	4 39	7 41	4 58	7 29	5 28	6 51	5 57	6 00
26	4 39	7 41	4 59	7 28	5 29	6 49	5 58	5 58
27	4 40	7 41	5 00	7 27	5 30	6 47	5 59	5 57
28	4 40	7 41	5 01	7 26	5 31	6 46	6 00	5 55
29	4 40	7 41	5 02	7 25	5 32	6 44	6 01	5 54
30	4 41	7 41	5 03	7 24	5 33	6 43	6 02	5 52
31			5 04	7 23	5 34	6 41		

Add one hour for Daylight Saving Time if and when in use.

Use Fresh Fuel

The highly combustible vapors present in gasoline—what the engineers call light ends—are lost when gas is stored for a long period. For this reason, engineers recommend using only fresh fuel in your outboard motor. Trying to use fuel left in a tank over a period of several months can cause hard starting and fuel system fouling.

BOATING-HOW MUCH DOES IT COST?

By WAYNE HEYMAN



More than \$2½ billion was spent by 4.5 million American boaters last year for new and used boats, motors, accessories, safety equipment, fuel, insurance, docking, maintenance, launching, storage, repairs and club memberships. If you are one, out of the hundred thousand or so newcomers who intend to try boating for the first time this season, then you might be asking, "How much does it take to get started?"

It might come as a surprise, but it costs less than \$1,000 to begin boating, or about the price of a good used car. Although this sum won't buy a yacht, here's what you do get, with everything *new*, for this amount: 14-16 ft. boat (\$355), 15-18 hp motor (\$355-\$385), trailer (\$150), accessories which include lifejackets, lights for night operation, fire extinguishers and horn (\$100). Used equipment costs half to two-thirds as much.

This family's "first rig" is a perfect, all-purpose boat that can be used for fishing, skin diving, cruising in sheltered waters or for a host of other water activities. Low priced, but reliable outboard engines such as the 15-hp Gale Buccaneer, 18-hp Evinrude Fastwin or 18-hp Johnsons Sea-Horse will give this length boat enough power to tow one adult skier, or two youngsters at a time.

The family searching for low cost luxury can enjoy boating in a more elaborate runabout, of fiberglas or plywood construction, priced between \$500-\$1,200. An average boat at the top of this price range might be a 15-16 footer equipped with complete convertible top, ventilated mahogany windshield, shipping cradle, running lights and upholstered seats. Outboard motorboats in this class should be powered with 40-hp engine (\$570), and towed to water with a sturdier trailer (\$300). When fully fitted-out with motor, trailer and accessories, the final cost will be far less than a new, 1963 "low priced" car.

Prefabricated boats have been around for nearly half a century. For the do-it-yourself builder that enjoys assembling and painting, these kits save the home craftsman between 30 per cent to 50 per cent of the cost of similar factory finished crafts. For example, an 8-ft. pram, suitable for motors up to $3\frac{1}{2}$ hp costs about \$50 and can be put together in a few hours' time. The more elaborate minded builder can purchase a 20-ft. outboard cabin cruiser, designed for engine power up to 75 hp, at about \$850. A kit of this caliber usually takes several months of spare-time work to construct.

Boat owners who have neither the time to spare not the urge to build, can purchase hulls in semi-finished form, minus hardware and paint. Finish-up kits in this form usually save boaters around 10 per cent to 20 per cent, depending on the boat's size.

It might pay well to investigate completely the wide choice of prefabricated boats available. Several companies sell "short kits," a type that increases boat construction substantially, but cuts the cost of spending 60-70 per cent off the price of a factory-made craft Short kits come complete with such lightweight items as seats, frames, stem, transom, windshield and hardware, but are minus the more bulky pieces of material such as marine plywood planking, decking and chine logs. Paper patterns and instructions are supplied for all missing parts. This saves the boat owner a considerable amount on freight charge. In the meantime, the missing sections can be purchased locally at further savings.

With the precision of today's production methods, kit boats have proved a big boom to boat owners. Manufacturers have gone to great lengths in making sure various parts fit with an amazing degree of tolerance so as to enable buyers to assemble their crafts with

ease. Planks are cut and numbered. All frames are properly notched and the chines and sheers are bevelled to assure both appearance and snug fittings. Mass production has helped reduce manufacturer's labor cost and brought prices down so low that now the most popular models, runabouts, can be purchased, in kit form, for as little as \$150.

Outboard motorboats are made in many styles. There are runabouts, utility models, cruisers, prams and contoon boats, to name just a few. Decide first which is best suited for your particular needs. Another point hat must be given careful thought is the various materials used in boat building. Fiberglas, wood and duminum are the most common and all have certain idvantages.

Needless to say, there is only one positive, expenseaving tip in boating: Have a definite idea of what ype rig is wanted before buying. For the average amily with two youngsters, a runabout outboard is deal. First, the initial investment is light. In contrast with an inboard—a thought that crosses every boat owner's mind—an outboard has higher speed per horsebower, less draft, greater adaptability to trolling, easier torage, higher degree of maneuverability and better resale potential.

Inboards should not be discounted though. They have nany worthwhile advantages such as better boat balance, lower fuel and oil consumption per horsepower, greater durability and all-round better sea-keeping qualities. The inboards' main drawback is they usually cost about twice as much per foot of boat than a similar sized outboard. Also an inboard engine must be equipped with clutch, gear box and V-drive gear transfer box when the motor is located amidships. These eatures add both to cost and weight in comparison with 12- and 4-cycle outboard engine.

Essential accessories, such as those prescribed by he U. S. Coast Guard in the Motorboat Act of 1940, hould be taken into account and allotted for. The costs of such items are minimal and they include children's ife jackets (\$6-\$8 each), buoyant cushions for adults which double as padding for wooden seats (\$5), lights—red/green combination bow light and white stern light \$25), whistle or horn (\$2-\$25), anchor (\$10-\$15), wo paddles (\$10), fire extinguisher (\$10-\$15).

If the boat is not equipped with minimum hardware, ou will have to obtain at least the necessary towing ye, chocks, and stern handles, totaling perhaps \$10-\$15. Other marine accessories which add to the pleasure of amily boating include speedometer (\$10-\$20), windhield (\$50-\$65), convertible top (\$50-\$100), and boat over (\$25-\$50).

The U. S. Weather Bureau uses a single red pennant to idicate a small craft warning. It signifies a forecast of either rinds up to 38 m.p.h. or sea conditions dangerous to small raft operations, or both.

Don't be a boating "litterbug." Put refuse and trash into a ag and dispose of it ashore.



Try Boat Camping for Vacation Fun

While millions of Americans are camping this summer, other millions will be enjoying vacations built around boating. There will also be those families who combine the two for a fun-filled vacation of boat camping, an activity that has become increasingly more popular in the last few years. Let's take a closer look at this boating and camping combination.

The two are completely compatible, probably more so than any other pair of outdoor activities. One adds to the enjoyment of the other. For example, a boat allows campers a chance to get out on the water to catch fresh fish for tasty camp meals, to explore the area, water ski, cruise and go skin diving. Camping, on the other hand, provides a home base for boating enthusiasts who want to be on the water all day but eat and sleep ashore.

There are two ways to boat camp and both have certain advantages. Most common is to trailer the boat right to the camp site so that the car will be available if needed. Another way, and it can be even more fun, is to trailer a boat to a jumping off place. Here the boat is launched, the camping gear is loaded into it and the car is parked, locked and left. The campers then set out for a camp site which is accessible only by water.

In the latter case where family camping is concerned, the camp site should not be located too far from a source of supplies. It should, of course, be far enough away to avoid congested public areas but close enough to conveniently get to a water front store by boat to pick up perishables and fuel.

In addition to the points already mentioned boat camping offers other advantages. For one thing, the boat provides a convenient place to carry tents, cots, cook stoves and other bulky equipment when en route. This leaves more room in the car and makes traveling more comfortable for the passengers. A boat is also a real boon in keeping the kids happy. Camping in itself can soon get to be old stuff with youngsters. If a boat is available to break the routine, they will be easier to manage.

In most areas, trailer boat campers have their choice of numerous camp sites. Before setting out, however, it's a good idea to obtain as much information as possible about the area you plan to visit. Write to state conservation departments, local chambers of commerce and other organizations established to furnish tourist information on specific areas. Explain what you have in mind and ask for their suggestions and recommendations. You'll find most of these agencies eager to help you in planning a memorable boat camping vacation.

Choose the Right Equipment for Boating Fun and Safety



CHOOSING THE PROPER EQUIPMENT for both fun and safety will make your boating more enjoyable. The equipment shown here includes Coast Guard approved life jackets and cushions, anchor with plenty of line, fire extinguisher, first-aid kit, horn, extra propeller, fenders and extra line. On the paddle are extra cotter pins, drive pins and propeller nut. At the bottom is a bilge pump, basic tools and an outboard owner's manual.

Boating equipment and accessories can be separated into three basic categories—items that are required, recommended and desired. The list of items actually required by the Coast Guard for outboard boats under 16 feet is short. It consists of only running lights and a life saving device for each person aboard. But, as the size of the boat increases, so does the list of required equipment. The wise boatman, however, will take it upon himself to add several other pieces of equipment even though they are not required by law.

On the "recommended list" are such things as an anchor, plenty of good line, a paddle if the boat does not have oars, a horn or other type of warning device, a few flares and a bilge pump or bailing device of some sort. Other recommended equipment includes a boat hook, fenders, flashlight, first-aid kit, extra propeller and basic tool kit.

Almost as important as having the equipment aboard is having it ready to use. This means having a place for everything and keeping everything in its place. Many outboard boats are built with shelves under the foredeck. This provides an excellent spot for storing equipment. It's even more useful if a shallow box is built and placed on the shelf where it can be used somewhat like a drawer. The box should be sectioned off to keep the equipment separated.

Another good way to keep equipment dry and handy is to mount it to the inner sides of the boat. Paddles, boat hooks, bilge pumps and other rather long and narrow items can be held in place with spring broom holders.

Getting back to the equipment itself, there are also many items on the "desired list." These are primarily accessories—things that are not really needed but make boating more fun. Number one on this list is a marine speedometer. It's only human nature to want to know how fast one is going, whether it be on land or water. A speedometer will give this information at a glance. They are also handy when passing through restricted speed zones and to give the operator some idea as to how the engine is performing.

A marine compass is a good and inexpensive investment for those who do their boating on large or strange waterways. Illuminated models are recommended for boating at night.

The list of accessories is almost endless. Depth finders, shipto-shore radios, tachometers, barometers and clocks are a few examples. Choosing accessories properly takes some careful consideration. Before buying, decide which items will give you the most enjoyment and be most valuable in your own type of boating.

Quiz for All Outboard Boating Buffs

Most boatmen make it a point to start the season with their equipment in top-notch condition. Too few of them, however, take the time to brush up on their boating savvy, which is just as important.

To test your knowledge, here's a short quiz that covers several aspects of recreational boating. Give it a try. If you don't do as well as you should, spend a few hours now getting boned up on boating. It will pay off during the rest of the season as well as in future years. The correct answers are found at the end of the quiz.

- 1. A steady but slowly rising barometer usually indicates:
 (a) settled weather; (b) unsettled weather; (c) thundershowers.
- 2. If your outboard motor idles roughly, first check: (a) propeller; (b) spark plugs; (c) shock absorbers.
- 3. To anchor properly in moderate weather, the ratio of length of line to depth of water should be: (a) 1:1; (b) 3:1; (c) 6:1.

- 4. A boat designed to run on top of the water rather than through it has a: (a) planing hull; (b) displacement hull.
- 5. When making a landing or picking up a mooring, use the wind or current to advantage by approaching: (a) into it; (b) with it.
- 6. The determining factor in selecting a propeller should be:
 (a) speed; (b) power; (c) the rpm of the engine.
- 7. Standard red and green running lights are designed with the red light on the: (a) port side; (b) starboard side.
- 8. A corroded marine battery is best cleaned with a mild solution of water and: (a) baking powder; (b) boric acid; (c) baking soda.
- 9. Black and white vertically striped buoys indicate: (a) mid-channel; (b) obstruction; (c) right side of channel.
- 10. A tachometer is used to measure: (a) boat speed; (b) engine rpm; (c) water depth.

Correct answers are: 1. (a); 2. (b); 3. (c); 4. (a); 5. (a); 6. (c); λ . (c); λ . (a); 8. (c); 9. (a); 10. (b).

Boat Trailering Skill Comes With Practice

Boat trailers have played a big part in the growing popularity of outboard boating. With a trailer, outboard skippers can enjoy boating on many different waterways whether they be near or even hundreds of miles away. A trailer also eliminates the need to rent a mooring slip. The rig can be brought home after each outing and stored in the owner's garage or back yard.

Despite the many advantages of trailer boating, some boatmen are a little reluctant to give it a try. Some have the notion that trailering is a real chore. Not so, says Tom Dorwin of Evinrude Motors. Dorwin, a former national water skiing champion, is now ski advisor for the company. In his many years of competition, he trailered boats from literally one end of the country to the other. If you've never pulled a trailer or are not the expert you would like to be, Dorwin offers the following suggestions.

Practice makes perfect. Hitch the trailer to your car some quiet Sunday morning and drive over to a large, cupty parking lot. A shopping center is ideal. Spend some time getting the feel of backing the trailer. Try to back in a straight line for 50 feet or so. Then try to back into a marked parking space.

It won't take long to get the hang of it if you remember one point—turn the car wheel in the opposite direction from the way you want the trailer to go. The simplest way to do this is to get into the habit of gripping the steering wheel at the bottom, and from that position, turn it in the same direction you want the trailer to move. Sounds a little confusing, but by turning the steering wheel left when it is held at the bottom, you're actually turning the car wheels right and vice versa.

After a short practice session you'll be ready to give it a try at the launching ramp. Perhaps your biggest problem will be the tendency to over steer which can cause the trailer to jack-knife. Don't let it bother you. Just pull ahead and try again.

Car Top Boats Handled Easily

When it comes to choosing a boat, car toppers are the favorite of many fishermen and hunters who make use of the nation's inland waters. They're lightweight, easy to handle and inexpensive to buy. Car top boats, of course, eliminate the need for a trailer. They also allow the user to get onto waters where launching ramps are not available.

A regular car top carrier is all that is needed to transport the boat. Straps provided with the carrier are used to hold down the boat on top of the car. A couple pieces of line tied fore and aft to the car bumpers will keep the boat from sliding back and forth.

Twelve-foot car toppers are most popular. Boats of this size usually weigh less than 150 pounds and are easily handled by two men. Car toppers are usually powered with outboard motors of 10 or less horsepower, depending on the size and specifications of the boat. The outboard motor is carried in the trunk of the car and attached to the boat when it is put in the water.

Car top boats are functional in design. Most come equipped only with seats and as a result are quite inexpensive. Prices vary with make and size but good car top boats can often be purchased for \$100 or less. Add to this the price of a three-horsepower outboard and a car top carrier and the total cost for a brand-new car top rig is still less than \$300.

Car toppers have several points in their favor and offer an excellent way to get started in boating.



WITH A LITTLE PRACTICE, anyone can become an expert boat trailer handler. The important thing to remember when learning is to take it easy; don't try to back up too fast. When launching, it's a good idea to have another person direct you onto the ramp.

Even an experienced trailer handler may have to make a couple of tries on a bad day.

Just before you back onto the ramp, loosen the trailer tiedowns, tilt up the motor and check to see that the drain plug is inserted. It's easier to do this before the trailer is backed to the water's edge. When the trailer is in launching position attach a mooring line to the boat, unhook the winch line and shove the boat off the trailer.

While you're parking your car, either have someone hold the line or tie the boat to a pier where it will not interfere with other boats being launched. When others are waiting to use the ramp, get your car out of the way as quickly as possible. It's only common courtesy, the same as you would expect from other boatmen.



CAR TOP BOATS have several advantages. They are inexpensive, easy to handle and can be launched almost anywhere. Car toppers offer an excellent way to get started in boating.

SPINNING THE BIG RIVER

By Ray Ovington

Big rivers like the Delaware and Susquehanna are, in reality, a combination of little streams and in their travels between the banks are many subtle shallows, long slick runs and eddies, as well as the obvious unwadable stretches of white water tumbling between house-size boulders. The sight of all this variety within the easy reach of the spincaster can be most devastating and one's first impulse is to start casting any and everywhere. It is far better, however, to think out your moves in much the same way the fly-fisherman, with his limited equipment, must do. By sparing the number of casts, you automatically enlarge your chance of taking a really big fish, for with the exception of those times when the stream is very high and roily, big fish are, more often than not, scared by indiscriminate casting.

The way to the big fish is that which is most direct. Figure out where he is likely to be, then go about the strategy by casting the lure, preferably above his lair, in such a way it will come down to him in perfect timing with the pressure of the retrieve. You will then present it to him perfectly the first time and all the nuances of the lure's built-in action will work its deadly attraction.

If you simply heave the lure in the general direction, it will usually go by the fish too fast, too high or in such a way he will not see it properly. Often the simple strategy of selecting a casting point above a midstream rock and working a cast well above it, letting the lure drift naturally, will draw the big one out. Other times a spinning lure is best fished slowly straight across the hot spot.

Streamer fly-fishing is the general technique which can be well adapted to big stream angling. If you have taken bass on streamers in big rivers, you've likely had to wade long and difficult stretches to put the lure in just the right current movement where the action will count. Any fly-rod man who has used a spinner knows what I mean. Spinning, however, makes the whole proposition easy. You need not wade, and banished is the heavy, bellying line with the accompanying difficulty of sinking the lure to the right depth just where you want it. Spinning will do all these things and more if you apply yourself to the task and put your faith in the tackle. Bass, big ones, will come out of the hot spots lured by weighted bucktails and even salt-water jigs in the spinning sizes if you don't scare 'em down by a lot of unplanned tries.

In the matter of lures, the heavy sunken lures such as the brass, copper and silver finished spoons are good teasers and will not snag up readily despite their weight, if you cast them bullet-like and not up in the air and down . . . a common failure which allows too much slack.

Remember . . . heavy line with the heavy lures if you want distance, but remember too that distance is only as good as its control. If you can reach the other bank but cannot manipulate the lure into the hot spot properly, save your effort and work from another point.

For fast water, avoid the lures with revolving blades that fan out from the lure shank. These spin too fast and create too much drag on the line and if and when a fish does hit, the pressure will often be too much for the frail line. The rod tip, already bent from the excessive drag, has little cushioning power left in it.

Avoid the lazy habit of tying your lures directly to the line for the holes in most of them are rough. Wire loops are also bound to cut into the thin nylon. Your best plan is to tie on a snap swivel of the proper size and weight for the job. Make sure your tackle box includes many sizes and use the smallest possible, for a large swivel detracts from the action of the lure. Tie your swivel with a clinch knot and carefully test it before you snap on the lure or the lure split-ring.

Often it is advisable when working with large lures in quest of river bass to use a short length metal leader ahead of the snap swivel for this will help avoid line breakage when the fish carries the lure into rough rocks or pesky snags. Bass, hard-scaled and hard-mouthed, tend to wear through a fine line. Incidentally, I have never found that the short leader of wire or plastic covered wire detracts from the killing qualities of the lures, so it just makes good sense to use them.

Fast-water fishing will twist your line unmercifully unless you take the proper precautions. When using lures that have any tendency to spin (and bait is definitely included here), employ a transparent fin to the leader or just ahead of the swivel.

Live bait is duck soup for the big stream. A hefty night crawler needs no additional weight unless you are still-fishing at the head of a pool. The worm fished, dead drift, casting in slightly upstream fly-fishing style, is still one of the most killing forms of bait-fishing. These same thoughts also apply to minnow-fishing as well and you'll note that you can make long casts easily with little danger of flicking the bait off.

Though it may seem like a great deal of bother, change your lure weights for given circumstances, even though you keep fishing from the same location. For example, suppose you are working from the head of a pool on a big fast section of the river and right below you is deep water with a combination of backwater and heavy flow with a white-water stretch in the center. Light lures can be employed on the shallow, slow fringes and retrieved right to your very feet.

The middle water can be handled with the middle-sized lures with ease and for the deep water too if it is slow enough. When casting across the three levels from a position downstream, the heavy lure is O.K. if you throw it just the other side of the fast water and retrieve as it is brought down by the current. Let it remain in the white water as long as you can and bring it upstream, holding the rod high as you work it quickly through the shallows. The lighter lure is sometimes more practical, however, for you can cast it upstream, allowing it to sink farther for its weight in the fast water and then take your time on the retrieve, bringing it through the fishy spots. I've taken many bass just at the fringe of white water where the bottom of the stream slants upward, for here there is a dead water current, not visible to us, where bass congregate.

Make it a point never to stay with one lure for too long a time in the same area. Change often, for fish seem to tire of the same lurc. They might follow it once or twice, but if you present them with something different on the third cast they will often strike. I've seen this proven in salt-water angling. A school of mackerel will go crazy for a particular lure for maybe three or four casts and then interest begins to lag. Put on something of the same color but different shape and action and they come in fresh and eager again. Remember this, for it will pay off again and again. Changing lures will also get you into the habit of selecting the right weight lure and action for the type of water you are fishing.

Never underestimate the power of the midget bass plugs in

all shapes, sizes and actions. I can recall one old bruiser that came a full fifty feet out of hiding for an old River Runt Spook. I was fishing the tail of a broad pool having worked my way downstream from the head. I hadn't had a strike despite the fact that I picked my locations and had cast carefully, practically calling the shots. While changing lures, I snapped on the River Runt. The cast was to a rock in the center of the pool, a wonderful resting place for the big fish that come into that lower water and stay there, frustrating all who try for them by orthodox means.

The River Runt was hard to handle, for the faster I retrieved, the deeper it went, so, I fed out line while keeping the rod bent against its downstream course. It must have wobbled its way at least 200 feet downstream when all of a sudden I felt a jolt. Instantly I whipped the rod back, lifting the line in a razor cut off the water. Snagged? No sir . . . there was the flash of a fish and the reel drag started to buzz and never quite stopped. When that finny gent came to the end, I snubbed him, the only hope. I swear he must have gone five feet in a long tarponlike tailwalk and then up—up! The line went slack but I didn't care for I had learned a secret of the big river . . . the way to a big baby in fast water is to give him something fishy . . . something large and formidable. I wish that every lure I have lost could have taught me what this one did that day!

Bass bugs in the evening, work well on lunkers that feed just below the fast water of a pool where it slides into a slower pace. Don't jerk them, but let them drift, stopping the line every now and then to make them swing into the current. Here the drag works to your advantage, despite the teaching of the drag-wary dry fly purist. That drag probably looks natural for any bug that size should cause some surface disturbance. Often a few ripples and the sight of the big bug is all that old Mr. Bass needs when he's beginning his night-time feeding period.

If I were selecting a rig solely for big, fast stream work with big spinning lures or small bait-casting lures (almost one and the same), I'd choose a 7-foot tubular glass with a fast tip and plenty of solid backbone in the mid-section. The fast tip makes the rig more versatile for other fishing, while offering just the right power for pinpointing the long casts to those mid-stream holes. This type of rod offers great striking qualities, too, for it is strong enough to lift a long line quickly and set the barbs. When a river smallmouth is hitting you, that strength is none too much to set the hook.

Playing big bass in thick, heavy water, requires you to let the fish do the dictating, for he will anyway. With a long line out it is hard to stop a downstream run and I've found that the best practice in this situation is to relax pressure entirely. Fish don't like to run downstream with the current and when they find the pressure relaxed, will immediately head back upstream. This is the point you have to watch for it is right here, with plenty of slack line, they will usually take to jumping. Keep 'em down by testing the pull against them, just enough so they will battle themselves out heading into the current. Now with the current working in your favor, let them drop down to a slack pocket and for the final netting, bring them in at the head of the quiet water, leaving a comfortable margin for them to roust about without getting back into the fast stuff for one last terrifying run downstream. If the hook has been wearing a hole, that last run may be all they need for leverage. Once they get it, your trophy is only a myth or the "one that got away!"

Play big fish until they are almost spent and don't make any sudden movement when they swim by those first few times for they are simply looking you over. When they start turning on their side have the net ready.

When the Shad Flies Hatch

By ALBERT G. SHIMMEL

The expert angler is aware that the opening of trout season is not favorable to his art except on rare occasions. As the water warms under the lengthening days the hatches increase in number and intensity until late May and early June mark the hatching of the largest of the Ephemeridae, the Green Drake or Shad fly. This is the one time of the year the angler finds large brown trout willing to feed at the surface during daylight hours.

The Shad Fly hatch marks the peak of abundance not only of this fly but of both abundance and varie y of species. Because of the numbers of surface feeding fish this has been nicknamed the "Duffers Fortnight."

In order to understand some of the effective methods of taking fish when the Shad is on it is necessary to be familiar with some of its life history.

The nymph burrows in the mud or sand of the stream bottom and are not available to trout in any quantity except when they are actually hatching. It is then that they emerge from their burrows. A tiny bubble of gas forms at the thorax and they rise toward the surface with a bucking motion. Here the nymph floats, the skin breaks open, the adult emerges and using the discarded nymph shuck for a raft, floats for the few seconds it requires for the wings to stiffen. It then lifts from the water and flies away to the trees. Here it again sheds its skin and so alters its appearance that it is difficult for any but a trained observer to believe that it is the same fly.

The nymph is a dirty yellow gray in color. The sub-imago is dull lemon yellow with dark brown or black mottlings. The wings are semi-transparent yellow with black barrings. After the second adult molt the body becomes elongated and is chalk-white in color. The wings are transparent and retain their black markings. In this stage it returns to the water to mate and lay eggs. The flight begins at sundown, high above the trees and gradually descends until the water is literally covered with floating insects. Anglers now crowd the streams, casting to the rise and hoping for a trophy trout. Paradoxically the angler often fails because his artificial is lost in the multitude of naturals.

One of the most effective methods of angling the Shad Fly hatch is to try the stream in the morning. The nymphs leave their burrows and become active some time before reaching the surface. Trout find these animated morsels rather attractive. A nymph either of the fly vise material or one of the molded plastic specimens is used. Cast it into the deeper, more calm portions of the pools and allow it to sink. Strangely enough the fish seldom take this pattern on the way down. After it has reached the bottom move it toward the surface in slow pulls with pauses between of sufficient length to allow the artificial to settle slightly. Trout many times follow them all the way to the surface and then strike viciously just as the angler is about to lift the lure for another cast. At other times the take is slow and del.berate. In the faster water a small dirty yellow streamer of marabou feathers is allowed to drift with the current with an occasional twitch to give it life. These streamers should be slightly over an inch long and have a body of creamy red fox fur spun on yellow siik. Keep the body rather rough to imitate the body of the nymph. It will also collect air bubbles and add realism to the imitation.

If you have confined your fishing during this hatch to the tag end of the day be sure to try the morning from about nine a.m. on. I am sure you will be agreeably surprised and have the further advantage of not being trampled in the evening rush.

POP A WORM FOR BASS

By Don Shiner

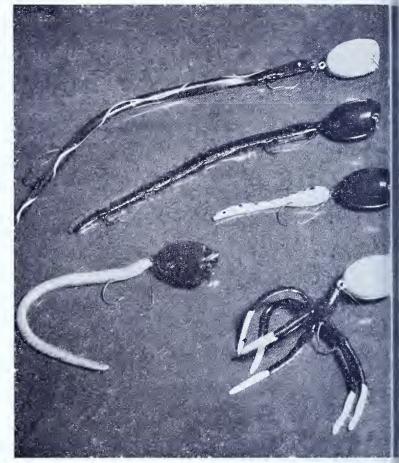
The hottest item, in recent years, to hit the imagination of the bass addict, is the black plastic worm or eel. During the heat of the summer months, when big bass seek the cool depths of deep water, a plastic worm wiggled slowly over the pond bottom reaps a harvest when other lures draw a blank. Now these plastic worm artists have gone one better. They emerged from their bottom plowing tactics only to ascend topside, and are using these same worms on the surface with astounding success! When the long-jawed pond bass have the slightest inclination to surface feed, they leap for joy at the sight of a floating, wiggling worm.

I watched my partner, in the bow of the boat, with interest as he "spinned" a popper plug toward a bed of weaving cattails. The lure dropped at the edge of the foliage. The plug remained quiet as the little ripples of sound dissipated. Then, the slightest twitch of the rod tip sent a loud "P-L-O-P" echoing among the reeds. I watched the little popper plug, for this artful angler had been catching three bass to my one. The plug quivered in the water for a surprisingly long time. Then POW! A bass pushed from the reed cover to slam into the plug. This fellow was once again playing a heavy bass.

When the bass hit the boat floor, I closely examined that little plug. It was a popper lure, no mistake about that, built with a concaved face similar to most noisy surface lures. But the similarity ended there. A sixinch black worm, fitted to a weedless single hook, dangled from the rear. Here was the secret! The popper-shaped head held the plastic worm affoat, though it dangled down into the pond, dancing the twist with every twitch of the rod tip. What bass could resist the sight of a worm dancing so enticingly overhead?

I had a package of plastic worms. I also had a popper plug, the conventional type, to which I could easily fasten a worm. In appearance, however, my renovated lure lacked the polish of my partner's plaything, but it suspended the worm on the ceiling of the bass's domain.

It worked. Bass came topside to clobber the wiggling worm with amazing regularity. We missed some bass. A few rushed in to bite only the end of the worm,



NEW POPPER-WORM concept for big bass surface fishing. The floating popper body keeps the worm wriggling on the surface.

racing away before touching the hook. Others scooped in the plug, worm and hook in one giant inhale. At noon our stringers held a number of bass, some tipping the scale at nearly six pounds! I was impressed.

"When did you spawn this surface worm idea?" I asked this angler in all seriousness.

"I didn't," he answered. "I bought this popper-worm plug at a sport shop. It's a new concept in surface lures, and one that I thought would work for bass. The popper-head plugs are fitted with plastic worms in a variety of colors. Others have plastic tadpoles and squids dangling in the rear. You pay your money and you take your choice, or you fit a plastic worm to a surface plug as you did this morning. An all black popper head with a black plastic worm is tops for night fishing."

Each year finds new renovations in lures or angling techniques appearing on the scene. A few years ago when the black plastic eel or worm was the rage among bass fishermen in the deep south, I knew the idea would catch hold here in the north, with plenty of Pennsylvania anglers finding it profitable to dredge the depths with this plastic wiggler. Now the same anglers have brought the black worm topside for surface fishing with equally deadly effects. Northern anglers should try this newest of bass techniques, too.

So pop a worm on the pond's surface. Then hold fast to your hat!

THE WORM WALLET

By ARTHUR GLOWKA

Rubber worms, eels and lead-headed jigs are proven bass killers. Many fishermen use these bottom-bouncing lures exclusively with great success. Carrying these lures, especially he eels and worms, presents a problem because they often stick ogether and become more tangled than a bait can full of their real life counterparts.

The solution is to make a simple worm wallet. It not only keeps the rubber worms, eels and jigs separated, and their tooks sharp and clean, but also allows the fisherman to handily arry them in his tackle box, fishing vest or hip pocket.

Two worm wallets can be made from a dollar's worth of anvas and some simple machine sewing. A worm wallet of he size described carries 5, 6, and 7-inch worms and eels. The jig pockets accommodate jigs as large as would ever be used in fresh-water fishing.

The fabric to buy is 10-oz. treated (waxed) deck canvas. A ralf a yard of this material costs less than a dollar at the hardware store and is enough to make two worm wallets. Untreated anvas or any heavy material can be used but will not be as stiff nor as waterproof. Treated canvas is the best bet.

The half yard of canvas is first cut into equal pieces measuring 18 inches on each side. Then the outline of the wallet is penciled on following the dimensions shown in picture No. 1. These ines must be drawn straight and square so the finished wallet will fold neatly.

Sharp scissors or a razor should be used to cut the material. Be careful to cut straight so there are no serrations which cause ravelling.

Before folding the top and bottom flaps, the fold should be scored along the dotted line (Picture No. 1) with a blunt tool. The back edge of a table knife works very well. This scoring insures a clean fold with a straight edge which is easy to sew.

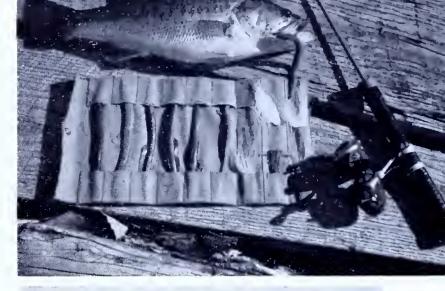
After the top and bottom flaps have been folded inward the guide lines for sewing the pockets are drawn. Starting from the right these lines are spaced 1½ inches apart as shown in the pottom of picture No. 1. This makes nine pockets with a 1½" lap on the left which is used for closing the wallet.

Unless you are a sewing machine operator you are going to 1sk your wife to do some simple sewing on her machine. Size No. 50 sewing thread works very well. The right and left edges can be sewn with a button hole stitch to prevent ravelling. The pockets are sewn with a regular stitch, sewing each seam wice to make it strong.

The extra jig pocket is an optional feature. It allows you o carry extra jigs but in no way will interfere with using the op and bottom pockets in this area for worms and eels.

The only thing left to do is sewing on a No. 2 snap; first naking sure that both parts of the snap line up when the wallet s folded close. This is easily done by folding the wallet in three equal folds and sticking a large pin completely through the canvas where the snaps are to go and then using these holes to center them.

The worm wallet is complete except for the lures. The worms and eels are placed in their pockets by first opening each pocket with your finger and slipping in the end of the lure. They can't nove or slip because of the pressure of the canvas against hem. One jig-headed worm or rigged eel fits perfectly into each pocket. Extra unrigged worms and eels can be fitted two and three to a pocket.



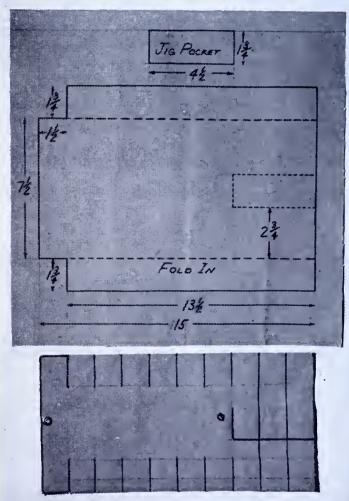


Photo 1 Photo 2







AERIAL VIEW of Pennsylvania Fish Commission's Opossum Lake scheduled for opening June 15. The 60-acre lake has been stocked with bass, muskellunge and bluegills. The breast of the 30-foot dam is at the upper part of the picture. Water backs up from dam approximately one mile.



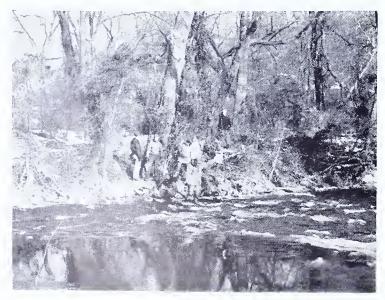
TUB FULL OF FISH displayed during survey taken at Opossum Lake last fall by (left to right) Fishery Biologists Dan Heyl and Curtis Simes, assisted by District Fish Warden Thomas Karper of Mount Holly Springs. The survey was taken to determine growth factors of the fish in the new lake set for opening to public fishing on Saturday, June 15.

Opossum Lake Open to Fishing-June 15

Photographs courtesy of Carlisle Evening Sentinel

Opossum Lake, six miles west of Carlisle, Cumberland County, Pa., will open to public fishing on Saturday, June 15, the opening day of bass season in Pennsylvania. A survey was made of the lake last fall by Curtis Simes and Dan Heyl, fishery biologists of the Pennsylvania Fish Commission. The survey was aimed at determining the growth of bluegills, bass and crappies over a period of a year.

Four large nets were laid at strategic parts of the 60-acre lake to study growth factors and make other observations of the fish. Biologists at the time said the number of fish which have reproduced in the lake was greater than anticipated but growth in size was less than hoped for. Many legal size bass, bluegills, crappies and sunfish were netted in the study. With additional growth anticipated since the survey last fall, the opening day at the lake should be a banner affair for anglers.



NEW FLY-FISHING WATERS — Members of the Yellow Breeches Anglers and Conservation Association, Boiling Springs, recently placed "fly-fishing only" signs on a mile section of the Yellow Breeches Creek in Cumberland County. The group stocked 1,400 trout in this and other sections of the stream and plan to add more from fish being reared in Boiling Springs lake trout pens.—Carlisle Sentinel photograph.

When hot, people seek shade or cool water. How about fish, a cold-blooded animal?

In one study brown trout always lingered in water between 51.8° F. and 62.6° F. Evidently warm water is uncomfortable to the browns and given a choice they will take cold water.

Browns will die when water temperatures exceed 80°. Species known as "warm-water fish" tolerate much warmer temperatures.

Muskellunge Culture Featured at Fish Commission's Open House



JNION CITY fish cultural station, Erie County, was the site f the Fish Commission's Open House. Foreground shows ype of trap net used to capture muskellunge.

Employes of the Fish Culture and Law Enforcement Divisions, Pennsylvania Fish Commission, held a special open house program at the Union City Hatchery, Erie County, on Sunday, April 21, 1963.

Although all state fish culture stations are open daily of the public, the selected program gave more than 200 visitors an opportunity to see some of the specialized echniques involved in muskellunge culture. The main event of the program featured egg-taking from a large emale musky and the even more complicated process of obtaining milt from a male muskellunge.

A demonstration of electro-fishing in a hatchery racevay provided added overall interest to the program. n addition, live exhibits of fishes common to the area vere on display. Various types of nets, tools and quipment necessary to fish culture were shown and xplained to visitors by Fish Commission personnel.

Northwest Regional Fish Warden Supervisor S. Carlyle Sheldon, gave a running commentary of the lemonstrations and explained the various phases of the program of the day to visitors. Wallace Dean, Fish Commission member, outlined the Commission's mustellunge program including its history, growth and mportance to the fishermen of Pennsylvania. Also peaking to visitors and viewing events of the open touse were Joseph M. Critchfield, vice president, Pennsylvania Fish Commission, and Albert M. Day, Executive Director.

VISITORS crowd around demonstration center where eggtaking from a large muskellunge was featured.

Bass Season Opens June 15, 1963

Pennsylvania's bass fishing season on inland waters will open at 1:01 a.m., Eastern Daylight Time, Saturday, June 15. At that time fishing for all species of fish in the Commonwealth will be legal. This year the season for walleye, chain pickerel, northern pike and muskellunge on inland waters opened on May 11, and together with bass, will remain open until March 14, 1964.

District fish wardens said that fishing waters throughout the Commonwealth are reported to be in excellent condition and should provide good fishing in most areas, barring sudden storms.

Regulations governing the inland water fishing include: bass (largemouth and smallmouth), minimum size—9 inches, daily limit—6 (combined species); pickerel and walleye, minimum size—15 inches, daily limit—6 (each species); muskellunge, minimum size—30 inches, daily limit—2; northern pike, minimum size—20 inches, daily limit—6. There is no season or size limit on pan fish, including sunfish (all species including bluegills), yellow perch, crappies, rock bass, catfish, suckers and eels. Possession limit on these is 50 of each or 50 combined.

Fishermen are warned that the open season on frogs does not begin until July 2.



CLOSE-UP of egg-taking procedure by hatchery technicians.



The FROM THE STREAMS

Sucker fishermen at Koon Lake, on March 10 last, were taking fish that I feel might have been record catches. Quite a number of the suckers weighed over five pounds; one weighed several ounces over seven pounds. It was the largest sucker I ever handled.—District Warden William E. McIlnay (Bedford).

While watching the ice jam on Conewago Creek I was surprised to see one large cake of ice twist and turn and in the process throw up a large carp. While he lay there flopping about I overheard two young men talking about going down on the ice to pick it up. Just as one of them decided to go after it a great surge of water picked up the ice cake and practically threw it back into the open water. The carp was tossed like a cork into the water. Was that guy glad he didn't get to the ice

cake!-District Warden Kenneth G. Corey (Warren).

Our nets were set in Conneaut Lake and in three days of fishing we took over 300 northern pike to be taken to Union City Hatchery and stripped of their eggs. All of these fish were there for anglers last summer and fall but for some reason these fish were not harvested. Fishermen who say Pennsylvania's waters are fished out should first find reasons for not catching fish and learn more about the lake's bottom, weed beds and then go to work with angling techniques, proper lures and baits to catch them.—District Warden Raymond Hoover (Crawford).

District Fish Warden Lee F. Shortess (Lycoming) observed that when the ice broke up in Muncy Creek, a sucker run occurred that surely exceeded all expectations. One Saturday as this officer was approaching the stream mouth four anglers were leaving with their limits of 50 suckers each. Each man carried over 100 pounds of fish on their backs. Each had been fishing four hours that day. Upon seeing them, I decided to make a check count. There were 21 fishermen with some 40 odd suckers each. Many more anglers had between 3 and 20 fish each. Of this latter group, all claimed catching many more but had thrown them back when they had enough for a fish dinner. The "limit" fishermen claimed their wives canned or cold packed the fish after cleaning and then used the suckers as the average family uses canned salmon . . . fish cakes and sandwiches. It was claimed the bones become soft and edible as do salmon bones upon canning. As for flavor, they said it far exceeded canned salmon.

The 1963 trout season stocking program was aided considerably with the fine cooperation of sportsmen's clubs in my district. Due to the extended cold season this year, stocking conditions were pretty rough. Many cancellations were prevented by help from the various clubs. Bulldozers and highlifts were used to open snow-clogged roads. Jeeps, pickup trucks and good drivers with plenty of strong backs and legs were there when and where needed. Nobody can convince me fishing is going downhill in Pennsylvania when fishermen will cooperate in this manner to enjoy better fishing.—District Warden Paul Antolosky (Centre).



ANGLING ASSIST goes to Bobby Davidson, Bellefonte, Pa. from District Fish Warden Paul Antolosky on proper casting methods.—Photo by Jack Yeager—Centre Daily Times.

Warden Antolosky Directs Angling Course at Bellefonte YMCA

An angling techniques course was presented recently at the Bellefonte YMCA prior to the opening of the 1963 trout season. The course was under the direction of Centre County District Warden Paul Antolosky.

The course, held one night per week, two hours nightly, for three weeks, consisted of basic fundamentals of fishing, use of the fly, spinning and casting rod technique. Also, proper presentations, selection and care of equipment, bait and fly casting, fish identification, safety and valuable tips and instruction is angling.

George Harvey, noted authority on angling from Penn State University, demonstrated fly-casting and bait-casting techniques to the interested classes. Danie Lonaberger also assisted in presenting safety tips and other valuable fishing information. The course was well received by about a hundred persons attending each session. No admission charge was made and the project was sponsored jointly by the Pennsylvania Fish Commission and the Bellefonte YMCA.

Education that includes some thought of environment, for the cherishing of our wild places, should be the number one project of the human race.—Dr. O. J. Murie



Boulder Valley Club's Fish Conservation Program

Boulder Valley Sportsmen's Association completed to initial phase of a three-phase program recently hen 43 of its members drained and seined Oren Woodard's farm pond in Sumneytown, Pa. The entire rogram was under the able supervision of Walter urkhart, District Fish Warden, Pennsylvania Fish ommission.

The Woodward pond was chosen as the first of many onds in the area to be part of producing more and etter fishing in the Perkiomen Valley.

Phase one of the overall program consists of draining farm ponds and seining out the fish. The trash and in fish are either destroyed or planted in nearby reams, whereas the game fish are put in small holding ponds until the ponds are refilled and fertilized.

Phase two is the restocking of these ponds with a vo to one ratio of food and game fish. During this tase ponds are periodically checked to measure the towth rate of the fish and the ponds' reproductive pacity.

The third and final phase is the seining out of legal ze game fish for stocking in nearby creeks and streams pen for public fishing.

Assistance and help in the initial phase of the proram was provided by Delmont Scout Reservation and e Green Lane Fire Company. Don Cunningham is ish Committee Chairman.

Former District Warden L. E. Close was helping to stock out in the Driftwood Branch of Sinnemahoning Creek along th Game Protector Norm Erickson. Erickson's Labrador triever was along but could hardly be called a first rate trout ocker. After the stocking was ended and all were gathered out the truck ready to leave, the group turned to look for 2 dog. They saw him bringing a fish out of the water in his outh. He was warned that following the fish truck was less an ethical and the unharmed fish was returned to the water.

History is the glorious record of man's increasing mastery of ture and deepening insights into his own inner world.—Harry endelson

You Asked About It

By W. W. BRITTON

Chief Enforcement Officer, Pennsylvania Fish Commission

The following questions were asked through our mail bag correspondence. If you have a specific question or problem relating to fish laws and regulations, send them by eard or letter to Editor, Pennsylvania Angler. Pennsylvania Fish Commission, Harrisburg, Pa.

QUESTION:

Is it legal to use small sunfish and perch as bait?

ANSWER:

Sunfish and perch may be used for bait if they have been taken by hook and line. These species are classed as game fish and may not be taken with a minnow seine or trap.

QUESTION:

How many bait may I have in my possession if I purchased them from a licensed propagator or baitfish dealer?

ANSWER:

There is no limit on the number of bait you may possess if purchased from either a licensed propagator or licensed bait dealer. You must be in possession of the bill of sale you received from the seller which shows the number, species and date purchased. Such bait may be possessed for a period of 15 days from date of purchase.

QUESTION:

I have a farm pond and would like to know if other persons whom I invite to fish in it must have a fishing license and may they take fish, any size, any number and any species the same as I am permitted to do?

ANSWER:

The only persons who may fish farm ponds without fishing license and take fish therefrom at any season of the year, any size and any number are: The resident owner, tenant farmer, regularly hired help and members of their immediate families residing on the farm. All other persons must have fishing licenses and abide by the seasons, sizes and numbers the same as if they were fishing any stream or lake in the state.

The farmer or others as listed above may catch the fish, any species, any number, any size and give them to their friends to take off the farm, providing the person catching them gives the person a statement in writing which shows by whom caught and to whom given. The number and species. The fish may then be taken and possessed by the individual not residing on the farm.

Editor's Note: A question in this column, May issue, asking when Sunday fishing was enacted went unanswered due to lack of space. Sunday fishing became legal on April 14, 1937.

There can be athletes among fish. When conditioned to fast water, they have larger hearts and higher blood hemoglobin.

When faced with fast swimming, their condition pays off. They can use up more fuel reserves and undergo a larger oxygen debt and still recover faster than untrained fish, according to a recent study.

The angler would no doubt like to catch the athlete.

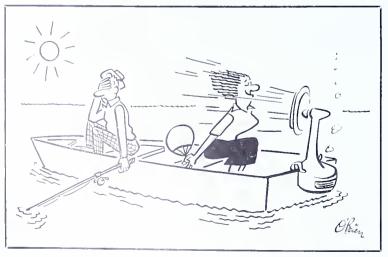
Creativity is the art of taking a fresh clean look at old knowledge.



TROPHY TROUT . . . 25½ inches long, weighed 8½ pounds caught by 12-year-old Dennis Johnson, Milesburg, Pa. Dennis caught his big rainbow in Spring Creek, Centre County, near the West Penn Power Plant about 8 a.m. on opening day of the 1963 trout season. The big fish took a spinner.—Photo courtesy Hassel Lose, Bellefonte, Pa.



BIG BROWN TROUT, 25¾ inches long that fell to a minnow fished by Jack Baumgardner, Milroy, Pa., while fishing Honey Creek near Reedsville, Mifflin County, on opening day of the trout season.



Letter to the Editor

Dear Editor:

My name is Kirk Mangus and I am in grade 4 at Hadley school in Sharon, Pa. My father thinks this report I made for school is good enough to send to you because I used the Pennsylvania Angler for this report.

—Kirk Mangus

FISH OF PENNSYLVANIA

If you want to go fishing in Pennsylvania, your best bet is to go to the mountains to fish in the streams and creeks. In the mountain brooks where the water is very cold and clear you can find the trout. They are hard to catch because they frighten easily. Trout are some of the best eating fish and you fry them with the head on in butter until they are crisp.

There are two species of trout in Pennsylvania—rainbow and brook. In these creeks you find minnows and crayfish. When the brooks and creeks flow into the larger streams you will find other kinds of fish. The larger streams have larger fish Some good fish are rock bass and warmouth bass, crappies, bluegills, sunfish and pumpkinseeds. Among the rocks at the bottom lay the suckers and mudpuppies.

We have very few lakes in Pennsylvania. However, we live near a large lake, man-made, called Pymatuning Lake. Here we can find largemouth bass which are a terror to the tiniest mole who happens to fall in the water to a large water snake. The bass are very good baked with stuffing and some are as big as ten pounds. At Pymatuning you can catch carp and the sunfish family.

In the dirty water of our Shenango River live muskellunge, carp and suckers. These fish all have a mud-vein in them and if you clean them correctly they are good to eat.

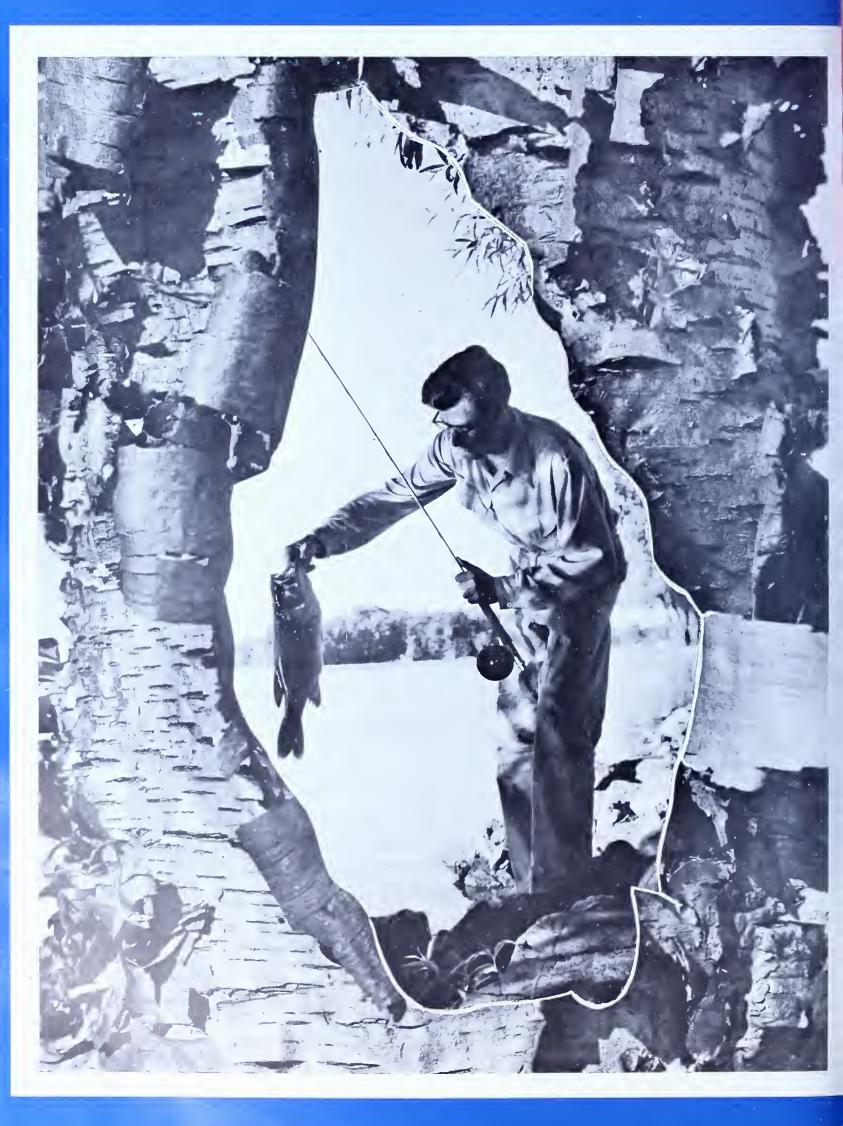
If we want to be able to fish in Pennsylvania when we grow up, we must help the conservationists to keep our waters free from pollution and wastes which kill our fish.

Dear Kirk:



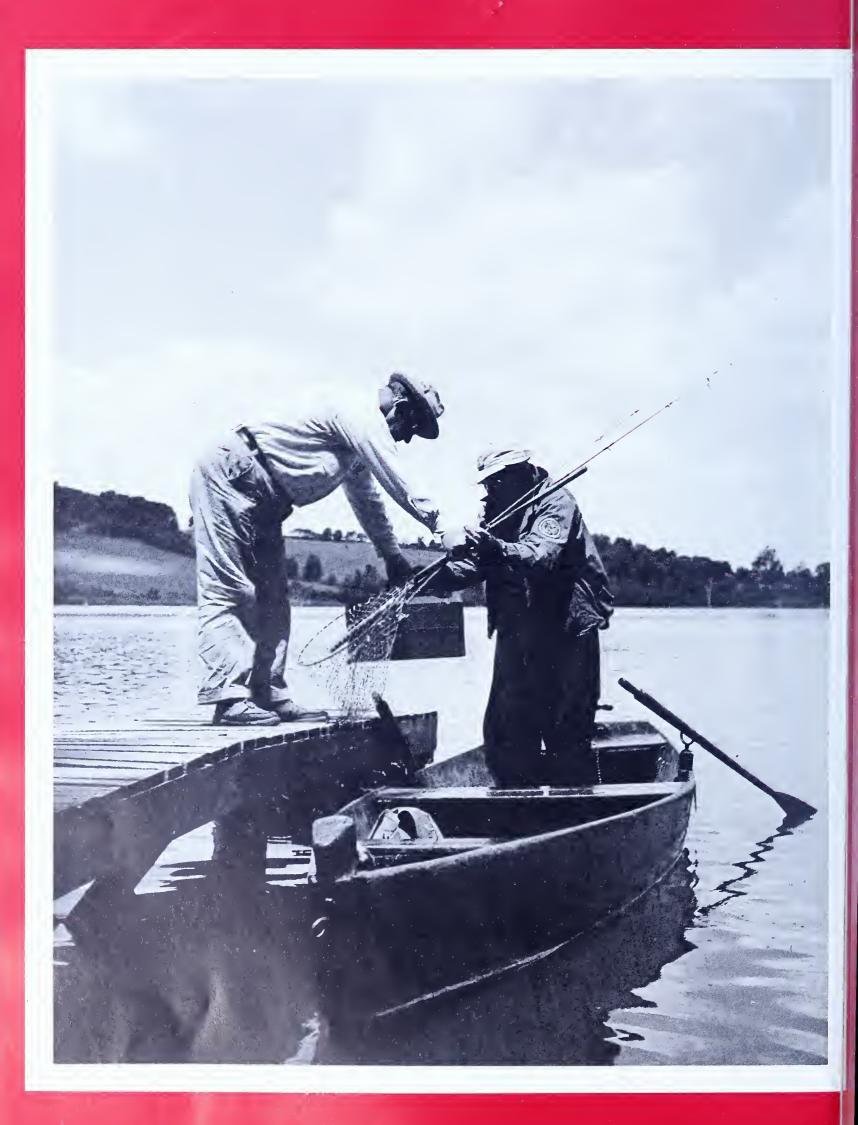
SMILING ANGLER is Ronnie Marshall, of Patton, Pa. He took this nice 22-inch brown trout on opening day of the trout season.—Photo courtesy of the Patton Courier.





Dennsylvania Angler





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JULY, 1963



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GEORGE W. FORREST, Editor

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"Where didja go?" . . . "FISHIN'"

Cover photograph by Grant Heilman

Back cover-"Lazy Summer Days"

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How Fish Breathe

By DR. ARDEN R. GAUFIN

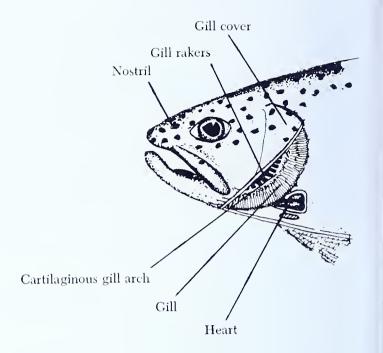
F you are a farmer, every time you allow muddy drainage waters to flow into a nearby stream you are helping to ruin fishing. If you live in a city, you are partly responsible for having changed your favorite nearby trout stream into a trash-fish stream. Many of your everyday activities may be decreasing your fishing success by suffoeating your finny friends. Depletion of dissolved oxygen in water, due to bacteriological decomposition of introduced organic matter is often the cause of fish kills in our lakes and streams. Every time we allow the community, of which we are a part, to pour raw sewage, industrial wastes, radioactive wastes, or even hot water into a nearby water course, we are decreasing our chances for future fishing pleasure.

There is no definite amount of oxygen that can be said to be absolutely necessary to sustain fish life. Moreover, fish differ greatly in their requirements. Unfortunately most game fish require more oxygen than many rough fish and hence often die while the rough fish survive. When oxygen is about one-third of the normal amount present in the summer, the fish are in danger. At times fish may survive on much less, whereas at other times they may die when this point is reached. These differences may be due to the condition of the fish and to the temperature and other physical and chemical differences in the water.

A knowledge of the way in which fish breathe may help you appreciate their need for a clean, well aerated environment and, if you help prevent pollution, thereby improve your fishing success.

Superficially, there is little resemblance between the respiratory system of man and that of most fish. The respiratory organs of fish are gills located in the gill slits and attached to the visceral arches. Each gill eonsists of a double row of slender gill filaments, with every filament bearing many minute transverse plates eovered with thin tissue and containing many capillaries. Each gill is supported on a eartilaginous gill arch, and its inner border has expanded gill rakers, which act as a strainer to prevent food from clogging the gills.

A fish respires by expanding its pharynx and taking water in through the mouth. Then the mouth is closed or in certain species, oral valves close, the pharynx is contracted, and water is forced out through the gill slits. Water cannot go down the esophagus, for this is collapsed except when swallowing. In sharks, each gill slit opens independently at the body surface. In bony fish, all of the slits empty into an opercular chamber which is closed when water is expelled.



The gills are protected in the gill slits, they have a large surface area, the blood and external environment are in close proximity, and gas exchange occurs readily as water passes over them. In addition, the body gains or loses water through the gills, and some nitrogenous wastes are excreted here. The salt-water fish also excrete salts through the gills. These fish live in an environment in which the salt concentration is greater than that in their bodies so they tend to lose water by osmosis. They must drink large amounts of salt water and then excrete the salts by specialized cells in their gills.

A number of fish live in water which has a low oxygen content, and they supplement gill respiration by occasionally gulping air. For example, carp can live in heavily polluted water having an oxygen content of less than one part per million. There is much more oxygen in the air than in water and carp can extract it as long as their gills remain moist. On the other hand, trout do not have this ability and require oxygen concentrations of and in excess of four to five parts oxygen per million parts water.

While depletion of dissolved oxygen, due to bacterial decomposition of organic wastes, is probably the most common cause of fish kills in our lakes and streams, a number of other pollutants may adversely affect fish by interfering with their respiration. High temperatures, excess turbidity, high concentrations of carbon dioxide, and certain toxic industrial wastes can markedly increase the susceptibility of fish to deficiencies of dissolved oxygen. Brook trout and silver salmon have been kept alive under laboratory conditions at dissolved oxygen concentrations of two parts per million at moderate temperatures (64.4° F.). By comparison, dissolved oxygen concentrations well above the three parts per million can be quite rapidly fatal at fairly high temperatures (77° to 80.6° F.).

Water used for cooling purposes in industrial processes may become so hot and be of such quantity that it may substantially raise the temperature of a receiving stream. In trout streams even a slight rise in temperature may be undesirable. Few trout, even the most tolerant species can survive temperatures above 82° to 83° F. even for



TOXIC substances from stream dumping practices can render water unsuitable for fish. There are too many stream-side dumping pest-holes along our Pennsylvania waterways. Injurious action of dump substances seeping into the water can prove fatal to fish and aquatic life.

very short periods. Furthermore, when stream temperatures are raised so that they consistently exceed 70° F. in summer, even though they may not be lethal, environmental conditions become less favorable for trout and more favorable for minnows, suckers, and other warmwater fish. This change is largely due to differences in the respiratory and metabolic requirements of these different species.

Clogging or blanketing of the gills of fish with matter suspended in water, such as soil particles, fibers, or precipitated matter is not unusual when fish are exposed to various toxic solutions containing the suspended material. Injury to the gills by the harmful dissolved substances probably results in the inability of the fish to keep their gills clean. Fish in extremely turbid waters may also be affected by the gill filaments becoming clogged with clay particles from the water thus interfering with normal gaseous exchange.

Any one of a great number of toxic substances can render water unsuitable for fish. Industrial wastes such as effluents from canning and sugar factories, oil refineries, pulp mills, metal finishing and electroplating plants, and steel mills, all of which are common water pollutants, can be highly toxic to fish. They may contain oxygendepleting organic material, acids or alkalies, salts of various metals, cyanides, phenols, and numerous other toxicants. Extremely poisonous insecticides, herbicides, and algicides can cause serious mortality of fish when they are purposely added to water or are accidentally introduced by being washed into watercourses from land by rain. The injurious action of many of these substances, which can be fatal to fish when dissolved in water, is largely external. Damage to the delicate tissues of the gills and impairment of their respiratory and excretory functions is a common cause of injury. The circulation of blood in the gills may be interfered with by an accumulation of mucous, which coats and clogs gills, immobilizing the gill filaments. The salts of many metals such as lead, copper, zinc, and mercury, particularly, produce this coagulation of mucous on gill surfaces and result in respiratory failure in fish. Such salts may gain access to streams from industrial plants and be largely responsible for a complete absence of fish in streams receiving effluents from heavily industrialized areas.

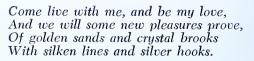
-Utah Fish and Game Magazine.



SEVEN MILLION . . . 7,000,000 fish were killed by water pollution in 1962 with domestic wastes the No. 1 killer, industrial wastes in second spot. Mining killed 700,000 and agricultural poisons wiped out 91.000.



BEAUTIFUL TROUT WATER . . . but is it? One accidental shot of poisonous insecticides, herbicides and algicides could be fatal to the fish and ruin fishing throughout the length of the stream.



LVER since Mrs. Izaak Walton watched from her London doorway as her husband departed for a week-end of fishing on the River Lea, wives have suspected that there may be more to the sport of angling than meets the eye.

After all, when a man gets up before daybreak on his day off, to return many hours later, bewhiskered, bleary-eyed, and often fishless—yet smugly contented—one has reason to wonder.

So the question is, "Why do men go fishing?" The obvious answer, to catch fish, just won't do. But if not fish what is it we seek. What's really behind our compulsion to pursue fish. In perfect honesty, this is a question that we anglers have never faced up to.

The answer, I have come to conclude, is love. If that sounds strange, pause a moment and consider. The typical angler on the eve of fishing season is like a high school freshman preparing to ask his secret sweetheart to go to the prom with him. He can't sleep, can't eat, he is light-headed, giddy, wobbly in the knees, and his breath comes in short gulps. The symptoms are the same in both cases. And so is the diagnosis. It's romantic love.

But romance is only half the story. We also speak offhandedly of having a "passion for fishing," or we refer to a man as being a "passionate angler." Here again we are laying our cast squarely over the rise without knowing it. Fishing is both a romance and a passion.

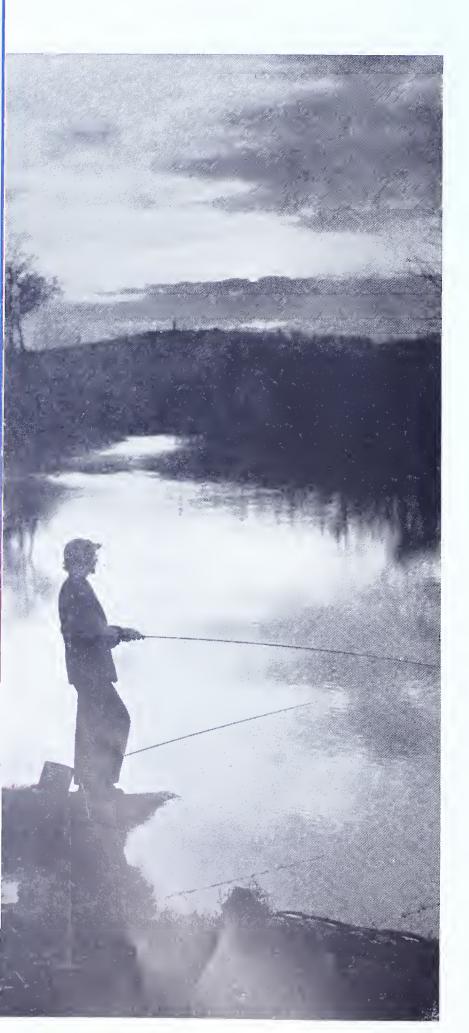
The problem is that terms such as romance and passion are seriously applied only to the relationship between men and women. So when we use them to describe our feelings toward a sport it might follow that we are talking about a different kind of love. But are we really?

Actually, there seems to be a definite psychological overlap between a man's feeling of romantic and passionate love for a woman, and his romantic and passionate love of angling. The cause of this overlap is not clear, but I suspect that it may have its roots in boyhood when most men begin fishing. As young anglers grow into their teens they find themselves enmeshed in a tender trap, torn between chasing girls and chasing fish. It is at this point that a man either becomes an avid angler and eventually marries in spite of it, or he gives up the sport entirely.

Thus at the very time a man first begins experiencing love he encounters a conflict of desires. In the confusion his romantic urges become vaguely mixed up with fishing. After marriage the conflict still rages, with the angler-husband now torn between family obligations and his desire to go fishing. By transference, man's love of women, which acts in conflict with angling ambitions, carries over into the pursuit of the sport.

Of course, this is a personal theory. Nevertheless, there is little doubt that a psychological overlap does exist. It even has legal support from no less an authority than Robert Traver, the jurist-author of *Anatomy of Murder* and more recently of *Trout Madness*. In his latest book, *Trout Madness*, Mr. Traver wonders out loud whether man's compulsion to pursue and catch fish may not be related to "the sexual urges of the fisherman himself."

Under our present customs, he observes, courtship and marriage can get to be a routine affair. "Some men there be among us who doubtless rebel at constantly laying



Of Milkmaids, Nymphs, and Golden Sands

or

WHY MEN REALLY GO FISHING

By JIM HAYES

siege to an already conquered citadel," he says. "Unless they are going in for collecting blondes, fishing and all that goes with it may be the one pursuit that permits them to vent their atavistic impulses and still preserve the tatters of their self-respect."

Interesting though it is, Traver's atavistic theory is not particularly new. The original version had it that because men's primitive ancestors fished for food, the lore of the pursuit got stuck in our natures, and handed down like dew-claws on dogs or appendices in people. Thus, we now do for sport what our cave man forbears did for food. Traver's sexual interpretation makes a lot more sense with one slight exception. He's got hold of only half the apple. He currently sees the passionate side of the overlap, but he overlooks the romance.

In his book, Fisherman's Luck, Henry Van Dyke confessed to being a true believer in romantic love. His only doubts on the subject grew out of "a sedentary life and enforced abstinence from angling." When he went fishing he returned to "a saner and happier frame of mind."

He explains, "Even on a trout stream I have seen nothing prettier than the sight which I once came upon as I was fishing down the Neversink. A boy was kneeling beside the brook, and a girl was giving him a drink of water out of her hands. As I glanced discreetly at their small tableau I was not unconscious of the new joy that came into the landscape with the presence of a lover and his lass. I knew how sweet the water tasted from that kind of a cup. I also have lived in Arcadia, and have not forgotten the way back."

Van Dyke introduces here still another element in our whodunit. For this "girl by the stream" (with or without her boy friend, but preferably without) is a wraithlike creature that we anglers have been pursuing and writing

about for centuries.

She tiptoes ghostlike through fishing literature under many names and in various disguises. But she is always lovely, she has a simple, musical name, and a mystical other-worldliness about her. She is every man's secret dream girl, his personification of the ideal woman.

To Edwin L. Peterson in No Life So Happy she was the lithe, golden-haired Elaine who knew the secret of the King of the trout stream. To Frank L. Stanton she was Jenny, for whom he let the fishing go to walk with "through meadows with daisies white as snow." And to Izaak Walton's fishing partner, Sir Henry Wotton, she was pink-cheeked Joan with her "neat-rubb'd pail tipping to milk the sand-red cow."

Even old Izaak Walton, saintly man that he was, seemed haunted by dreams of encountering wood nymphs during his streamside rambles. In several of his poems and prefaces he refers to a wood nymph named Clora. In early editions of The Compleat Angler he tells of hearing Clora sing while loitering long days "near Shawfordbrook." Finally, in 1676, in the fifth edition of The Compleat Angler, Clora the wood nymph takes human form to become "Kenna"-his late wife, Anne Ken.

It is interesting to note that while Walton's wife was living, he pursued an imaginary wood nymph during his fishing trips. But in his old age, after his wife had died, Clora the wood nymph and Anne Ken his beloved wife merged into a single identity. Ah, how sweet the cup of remembrance!

The truth of the matter is that we cherish most what we can never fully possess. When we have a wife we want a wood nymph, and when the wife is gone we yearn for the wife. When we have romance we want passion, and when passion is fulfilled we long for romance.

Only in fishing do we find the perfect mistress. In fishing we get only fleeting kisses and constant enticement. The great embrace, the completed passion, as symbolized by the fish we pursue, is always tomorrow or around the next bend in the river. The secret is akin to that of the strip-tease dancer. She never shows too much, and we keep coming back in hopes that some day she will.

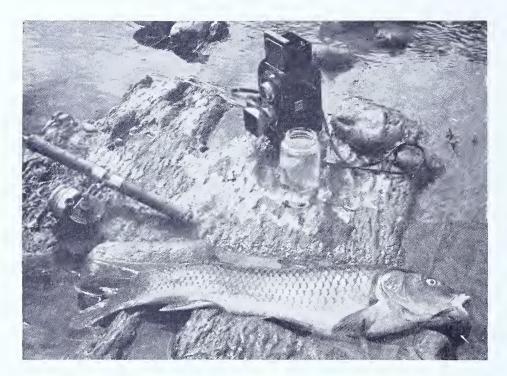
Fishing offers not only the perfect fulfillment of romantic love, but it contains the promise of passionate love as well. Subconsciously we are always seeking that "girl by the stream." And so we fish from pool to pool, romantically in love, yearning for passionate fulfillment, but never quite achieving it. This kind of a pursuit comes as close to ideal love as mortal man ever gets.

So there you have it. The fact that fishing season opens in the springtime probably accentuates the symptoms. But the underlying motivation is a crazy, mixed-up quest for a non-existent blend of romantic and passionate love. We never find this heady concoction, of course. It doesn't exist except in dreams and poetry. But in fishing we find the closest thing to it: the romance of the stream, pursuit of a sport, and the vision of the lovely Lorclei who waits for us around the bend in the river.

So the next time you go fishing, just kiss your wife goodbye and gently explain, "Goodbye, old dear, I am off to make love to a trout stream and chase a wood nymph across the meadows. And don't wait up because I won't be home until late Sunday night."

She will understand perfectly.

Yes indeed. . . !!!



Spinning For Carp

-ERWIN A. BAUER

THERE'S no point in cussing carp any more. We might as well make the best of them.

So far our biologists have found no way to dispose of them without destroying other fish at the same time. Anglers can't catch them fast enough to make a dent in the over-all population. So it looks like carp are here to stay. And according to the way you look at it, maybe that's not so bad.

Let's see how the carp measures up. A three- or four-pounder is average in Pennsylvania. No other fish of the same size is as powerful. Carp will never thrill you by jumping—or even by breaking the surface—but they straighten more hooks and break more lines than all other fresh-water fishes together.

Maybe you've known humiliating moments at the hands of old settler browns. Perhaps you've spent an entire summer, as I have, just trying to hook one jumbo. Well—carp are every bit as wily and as fastidious. They belong in the heavyweight class mentally as well as physically. For instance, you'll fish a lifetime before you take a carp on any type of artificial lure. Of course that disqualifies him from the roster of game fish, but it doesn't label him a dumbbell. The bass, bluegills and trout fall for all those hair and hardware combinations easily enough. But carp need real calories.

There is another, less happy side to his character, though. Those tendencies, for example, that earned him the name of "sewer bass." His foraging habits roil vast areas of water, consume beneficial types of vegetation and suggest the name "root hawg." And no matter how you look at it, his physical appearance is not likely to inspire any classic fishing essays.

Depending on your point of view, carp have another very good or very bad quality. They're abundant. You can find them virtually wherever there is water enough to cover them the year around. They are tolerant to ex-

tremes in water temperature and to a great variety of impurities. They prosper in clean water and foul, in running streams and in lakes.

Catching carp is fascinating business. It requires skill. Sloppy casts to feeding fish will put them down as surely as a poor delivery will frighten a feeding brown. For the greatest success it requires use of light and delicate tackle—preferably a spinning outfit.

Spinning was made to order for carp. Its European originators probably had carp in mind. The critical moment in carp fishing is that second or so when a curious fish lightly samples your bait. If there is any noticeable drag, he'll hurry away in search of vitamins less likely to be fatal. Right there is the biggest advantage of the spinning reel and light monofilament line. By leaving the spool open, line can be pulled from the reel by a nibbling carp with practically no resistance.

There are other advantages to spinning. In carp fishing, you're dealing with small baits and the lightest sinkers possible. Spinning affords the greatest ease in casting them. It also gives you more distance.

Carp are steady, busy feeders. But they are fastidious, as we mentioned before, and almost dainty. They scour strips of bottom as thoroughly as a vacuum cleaner, but morsels of large size are discarded, even by larger fish. It is as important for an angler to use only small baits as it is to prevent drag on a sampling fish. That means small hooks, too.

Prepared dough baits are the most popular with carp fishermen wherever you find them. And justly so—for carp are susceptible to a great variety of these homemade concoctions. A quick and easy one to prepare requires equal quantities of flour and yellow corn meal. Mix them with enough water to make a dough. Drop small pieces, each no larger than your smallest fingernail in boiling water. Remove them when they become like sponge rubber. Dip

in anise, put them on No. 6 or No. 8 hooks and they're ready to go.

I rarely fish specifically for carp any more. But I do carry a supply of those dough baits in my kit. There are always days when other fish are not hitting—so I put the dough baits to work. And of course there are occasions when a school of feeding carp is located. Times like these you'll often have more action than you would with any other local fish. A five-pound carp can give you some exciting moments; a ten-pounder will leave you talking to yourself.

There are as many effective baits for carp, nearly, as there are carp fishermen. Marshmallow is popular. Partially cooked turnips, parsnips, or potatoes are good. Perhaps the most deadly of all is two kernels of fresh sweet corn on a very small hook, even for very large fish.

Some queer baits have also been used successfully from time to time. Ivory soap has produced good catches. The list is long; it includes wall paper cleaner, cheese, and salmon eggs. Among the natural baits, you can't go wrong with nightcrawlers or small crayfish. I've had them take hellgrammites, too.

Sometimes finding carp is a simple matter. On other occasions, it can be quite a chore. Roily water areas are often good indication of their immediate presence, especially if surrounding water is relatively clear. Obviously it's good policy to confine your fishing to mud bottoms. Carp feed by "rooting"—and rocky or gravelly beds are not suitable.

In streams, carp frequent pools of medium depth. At certain times, you'll see them move out onto the riffles, perhaps for crayfish, but this isn't standard behavior. When you do find them in shallow water, they "spook" at the slightest provocation.

The downstream sides of small dams or similar stream obstructions are excellent places for carp to congregate. Sometimes it's hard to keep a bait on the bottom where water boils as it does beneath a dam. But if you succeed, you're in good position to connect. In one such pool no larger than an average living room, I saw one angler take 14 carp. One was a 22-pounder. Presumably the fish had worked upstream from the Ohio River about 15 miles away.

Usually it isn't too difficult to keep your bait on the bottom, even in moving water, and at the same time eliminate drag when a carp takes the bait. Obtain a supply of the type of sinkers through which the line can run freely. These should weigh about one-eighth ounce each and should be located just a few inches above the baited hook. A taking carp can thus run easily, pulling the line freely through the sinker.

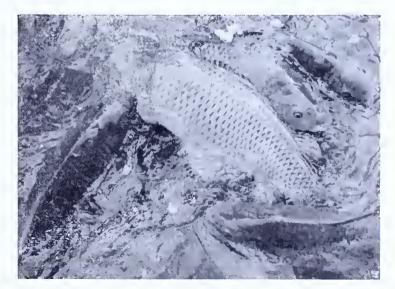
The sinker has two purposes. It's necessary as a casting weight and it serves to get the bait on the bottom where a current exists.

There's little doubt that importation of European carp more than a century ago was unwise. But like starlings, English sparrows, Norway rats, and boll weevils, they're here to stay. Like brown trout and ringneck pheasants, they have accumulated a million and more fans, furnish a considerable amount of sport and relaxation.

Some years ago, after receiving my first spinning outfit, I hooked an 11-pound carp. I've never had a freshwater fish wage such a battle. Not even heavier muskies and Northerns measured up. So—since I have to live with 'em—I'll fish and vote for 'em, too.



CARP of Linesville ore so thick ducks walk upon the fishes backs. Fishermen and tourists buy bread of the spot to toss to the boiling corp. The sight become so popular there was tough bidding competition for bread concessions.



SOME ANGLERS have little or no regard for carp fishing while others will be ready to rossle you the best out of three folls defending the corp. While in some streams the carp is a nuisonce and a detriment to other fish, it is a mighty heavyweight contender on light tackle, particularly a spinning outfit.



How To Pick The Best

In USED BOATS

By Wayne Heyman

THE fast expanding field of secondhand boats and accessories, offers all types of promising opportunities to wide-awake buyers. This market not only gives sensible beginners a chance to invest lightly to determine whether or not they will enjoy boating, but it also furnishes to most these newcomers some idea of the rig they will eventually want to buy.

Even veteran boat owners, who often purchase an extra boat for the advantages it offers, are not neglected. This second craft—usually a small one—is purchased for some younger member in the family. More often it is acquired for the purpose of cruising or fishing in areas too shallow for a large boat.

How do you pick out the best buys? The veteran boat owner usually knows most of the rules. Unfortunately, many of us have not reached this class and must rely on experienced advice.

Most smart beginners who are aware they're on unfamiliar ground seek the expert help of an established marine dealer. But often, many of those "once-in-a-lifetime" bargains are not always in their shops. For instance, some stranger in the next town might be advertising a forced sale on what seems like a good buy. A transaction of this type will depend on the buyer's own judging ability. How he makes out will balance largely on the following three rules:

- 1. Know the trouble spots.
- 2. Learn the current prices.

3. Have a definite idea of what is wanted before buying. There is still another side to the page, too. How can you expect to get the top price for your own boating equipment? Since every boat owner will eventually want to either sell or trade in his own equipment, this decision will some day be just as important as that first buy.

The general rules on selling are almost identical to those of buying with just two exceptions: The seller must be a fair carpenter and he must know something about engines. If you can hammer, paint, and clean out a carburetor bowl, then you can expect a fair price for your own equipment.

When buying a boat, even one that is to be used on an inland lake, check for ruggedness and strength. If the

boat is to be used in coastal waters, then these factors become even more essential. The weight of a boat alone does not mean strength. To qualify, it must be built so that the stresses and strains it receives are transmitted in such a way that the boat, as a unit, takes and absorbs them.

The strongest section of any boat is the keel. But regardless of size, it cannot, by itself, absorb all the strain a boat might receive. Shocks are taken first by the keel which in turn distributes them to the ribs, planking, and other parts of the boat. The combination of heavy material properly joined is ideal. But if a choice must be made between light material correctly joined and heavy material improperly placed, then preference should be made in favor of the lighter boat.

Boats correctly constructed have a keel which is either notched out or rabbeted to receive frames that are fastened by screw, nail, or bolt. Alongside the keel is usually located a garboard stake which is bolted above the rigs. The garboard insures first that when the bow hits a wave the shock of the impact is transmitted throughout the boat via the frames. A garboard also prevents the frames from moving out of position or otherwise working free.

Well-layed planking is attached to the ribs by at least two fastenings. Whenever planks are laid end-to-end, the splice should always have a butt block on the inside. Careful inspection should be given the transom and stem to see that the plankings in this area fit squarely and solidly without *any* compound filling. Always be wary of boats with loose fitting or filled in seams. A thin bladed knife will always reveal faults of this type.

All boats have some means of keeping themselves from springing apart laterally. This springing action is usually held in check with a heavy rough flooring laid directly beneath the deck (which in turn is fastened to the flooring) or with bulkheads running thwartships across the boat. Inspect these areas for stress and weakness.

If the boat has been in salt water for any length of time, then insist on checking the fastenings. A clue to rust is stained paint over concealed nail holes. When iron or steel fastenings begin to deteriorate, even in the first stages of rust, there is no method available to prevent them from worsening. But do not let this condition alone condemn an otherwise solidly constructed boat. What the buyer should do is make an allowance for this type damage and deduct the expense of replacing the fastenings with new ones.

The best fittings are made of true bronze screws which last almost indefinitely. Do not confuse bronze with commercial brass—a metal that is quickly eaten away when in contact with salt water. Again the emphasis is on personally removing a screw, checking the type metal, its condition, and seeing that it has not been beaten down to a wirelike thinness.

Anti-fouling paint is a *must* on the bottom of any saltwater boat. It is not important whether the seller or buyer applies the paint, the fact remains the hull must be coated before used.

Most boat owners enjoy refinishing work. It not only gives them a personal feeling, but the knowledge of a job well done. If the boat for sale lacks paint, consider this a favorable point, since a bare hull will quickly expose hidden defects. It will also furnish the new owner an excuse to refinish.

Before you decide to buy any boat, make the owner haul it out for inspection. Walk all around the outside and examine the hull carefully. A small knife blade may be poked at suspicious areas. If the knife goes in more than 1/16 in., you may have a "soft-spot." If the knife goes into the wood up to the hilt, then you have a serious defect. Pass this boat up and search for another. Sad expereince will show that it's much cheaper to simply purchase a new boat, than find yourself replacing, by slow degrees, the rotting plankings of a poor second-hand one.

The only cure for dry rot is to tear out every bit of infected wood and replace. If you leave a few shreds of dry-rotted wood, then the disease will likely spread to new areas in a short time. Paint will help prevent it, providing the entire surface is painted before the wood is put in place. There are many good wood preservatives on the market today which do a lot at keeping dry rot at bay, but here again, the entire piece of wood should be dipped or soaked after it is cut to shape and ready to put in place.

On old-time sailing ships, rock salt was used copiously all over the inside of the hull. The idea was to thoroughly salt the wood, and by this method, prevent a great deal of dry rot. At regular intervals, ships were "salted" and in time this treatment made the wood almost ironlike in hardness. There is no reason why this could not be done on many of our boats today.

A GOOD, RELIABLE RIG is something every boatman must have if he is going to get the last measure of pleasure from sailing and boating on our Pennsylvania waterways. A faulty piece of equipment can ruin even a new rig.





Boating

Robert G. Miller

MEMORIAL DAY, 1963, is by now a thing of the past—a date which in addition to its memorial significance is used by many Pennsylvanians as sort of an unofficial time piece to mark the start of another boating season.

Fortunately there are many boating enthusiasts who, after months of armchair cruising in the warmth of the living room, took advantage of the sometimes favorable weather prior to May 30 and managed to get in a few extra weeks of boating.

This year, provided you have the time and equipment, why not try something different for a change by making use of some new stretch of water. There are launching facilities galore, from one end of the Commonwealth to the other. All you need is the time and a strong urge to break away from the routine even if its just for a day or two.



A FEW SAFETY HINTS to keep in mind this year and every year:
A. Steer clear of fishermen and, as a result, he'll refrain from anchoring in areas commonly used by pleasure craft and water skiers. B. Learn the proper way to wear CG-approved life cushions. C. Carry shear pins, cotter pins, pliers and a punch. D. Use the seats, not the bow, cabin top or gunwales, while underway.

The Susquehannock Power Squadron, with a membership encompassing several eastern Pennsylvania counties, recently released its roster for the 1963 season—a roster which keeps growing by leaps and bounds each year as proof that more and more Pennsylvanians are becoming boating enthusiasts.

At the same time the association reported increased interest in its various courses of study dealing with not only safe boat handling but also the mechanics of boating. This is an excellent indication that folks have reached the point where they are no longer satisfied with just an afternoon cruise. They want to know what makes that engine hum, and what to do when it stops humming away from home port; they like to be able to look at the sky and tell what kind of weather is in store, and to have at least some knowledge of seamanship and piloting.

My apologies this month to the Tri-County Boat Club of Dauphin County which has taken over the former Stein's Landing, below Middletown, on the Susquehanna River. The former name was listed in the recent "Boating Guide to Pennsylvania Waters." Incidentally my aim is to keep this guide up to date as much as possible so drop me a line in the event of any new improvements, changes in management, or the establishment of new marinas.

Incidentally the Pequea Ski & Crutch Club, Lancaster County, is currently planning a water show for the Fourth of July. This organization, ofttimes confused with the Pequea Boat Club, operates on the lower Susquehanna out of Pequea.

Ed Barto, president of the organization, is also serving as chairman for this year's first, and perhaps annual, ski show which will feature trick skiing, doubles combination, slalom and jumping using the new ramp.

Last year the organization sponsored its first boat parade, an event which went over big in the Pequea area. A similar event, aimed at providing boat owners with an opportunity to use their creative ability in decorating their craft, was planned for early this month.

In addition to Barto, other officers are: Jake Eshleman, Conestoga, vice president; and Miss Mary E. Kauffman, 817 E. Madison St., Lancaster, secretary-treasurer.

Understand the Bethlehem Boating Club has expanded its facilities this year. Hope to have more on this subject in a later issue.

On Thursday, May 23, the Susquehannock Power Squadron released its roster for the 1963-64 season and if it becomes any larger, and it does each year, the squadron may have to issue it in two volumes.

Gray Playter, public relations man for the organization, reports the new roster contains 303 members plus the names of 86 women. The latter, better known as the "ladics of the squadron," are not members but hold certificates earned on completion of various boat handling courses.

During the past winter months, Playter reported, some 70 per cent of the members, and a few of their wives, took

advantage of the courses offered by the squadron. Ten different courses were made available in these communities: Lancaster, York, Harrisburg and Chambersburg. They included piloting, seamanship, advanced piloting, junior navigation and two optional courses of study, engine maintenance and weather.

Volunteering their services as instructors were: G. Robert Spalding, Neffsville, holder of a master's degree in meteorology from Penn State, who handled the weather course; Gilbert Reynolds, Lancaster; advanced piloting, Leon Sacks and Sam High, Lancaster, piloting, Jack S. Belsinger, Lancaster seamanship; Carl J. Wilcox, York, junior navigation; and Ward W. Donohue, York, one of the engine maintenance instructors.

C. McCrea White, Harrisburg, commander of the squadron this year, named Sam W. High, 1591 Mission Rd., Lancaster, owner of the 26 foot cruiser, "REBEL," as chairman of the boating activities committee this year.

At this point I would like to take the opportunity (space permitting) to ask for the cooperation of all boating organizations in the state, individual boatmen as well, in obtaining material for this column each month.

Today, because of the extensive growth of pleasure boating over the past 15 years and its importance as an outlet for family recreation, many publications, even some weekly newspapers, devote a certain amount of space to the subject.

Many use syndicated material, which may or may not have any local interest, while others make better use of material featuring local events and local people.

The latter is the aim of this column for the "Pennsylvania Angler" but in order to achieve this goal it is necessary to have the cooperation of clubs from one end of the state to the other.

To avoid getting into a rut with canned copy, I hope to deal largely with club activities on a more personal basis. A good start would be to list the names, and addresses, of all new officers and to use, if possible, a group photo of those officers. If a group photo is not available, then how about a recent shot of the new president or commodore.

Incidentally, all photos, which will be returned provided they have a return address on the back, must be good, clear and sharp back and white glossies.

A brief notice of advance activities can and will be used provided the information is received well in advance, at least two months ahead of time.

New facilities are always news and in most cases would also warrant the use of a photograph. If one is not available, pass along the item anyway and perhaps arrangements can be made to have a photograph taken especially for this column.

Pennsylvanians enjoy a variety of boating. Some prefer a rowboat for drift fishing, others aren't satisfied with less than a sleek, fast runabout; while some folks like the comfort of the small, roomy cruiser. On the other hand owners of sailing craft claim that's the only kind of boating there is.

My goal, and it may prove difficult to achieve, is to report something of interest to all of these folks and to touch on as wide an area as possible each month.

This is where cooperation comes in and I'll certainly appreciate hearing from boaters from all four corners of the Commonwealth, and points in between as well, as soon as possible. Please mail all copy to: Robert G. Miller, 367 Locust St., Columbia, Pa.

Rules of the Nautical Road Include Eight Basic Points

AVING a thorough knowledge of what you are doing always makes doing it more fun. This applies to just about everything, including recreational boating.

It's more fun when cruising, for example, if you are familiar with the rules of the waterways, buoyage systems and locking procedures. Water skiing is more fun when both skier and driver understand and use recognized hand signals. And here's a case where experience is not necessarily the best teacher; it's better to learn as much as you can beforehand.

Some things are pretty basic and should be common knowledge among all boatmen, whether they own 8-foot prams or 30-foot cruisers. In Outboard Boating Skills, a booklet published by the Evinrude Boating Foundation, outboard authority, Everett B. Morris, lists the following eight basic rules of the water road. Are you familiar with them?

- 1. Meeting—When two boats approach head on, each should steer to the right or starboard side of the other boat.
- 2. Overtaking—When one boat is overtaking another, the one doing the overtaking must stay clear of the one being overtaken. The boat being overtaken has the right of way.
- 3. Crossing—When two boats approach at a 90 degree angle, the one to the right of the other has the right of way. This is the same thing that applies when driving an automobile.
- 4. Leaving slips and piers—Boats leaving slips or piers for open water have no rights until they are entirely clear. They must proceed slowly and with caution.
- 5. Sailboats—Sailboats always have the right of way over power boats except in a rare situation where they are overtaking boats under power.
- 6. Fishing boats—Whether anchored or underway with nets, lines or trawls out, fishing boats have the right of way. Take it easy when passing a fishing party.
- 7. Tows.—Under certain circumstances, power boats have the right of way over tugs with barges in tow. In practice, however, it's only good sense to yield the right of way since a small outboard is much easier to maneuver than a string of barges.
- 8. Boats in distress—If you are involved in a mishap or come across one on the water, it is your duty to render all possible assistance. A good boatman is always ready and willing to offer a tow or lend fuel to a fellow sportsman in need.

There are the eight basic written rules of the nautical road. There are many other unwritten rules that come under the heading of just plain common sense. When in doubt as to what to do in a particular situation, put yourself in the place of other boatmen who will be affected by your actions and then act accordingly. You won't go wrong.

Water skis are made in varying lengths and widths. The weight and experience of the skier, along with the pulling power of the tow boat, should be considered when selecting skis.

Outboard Know-How Can Prevent a Lost Week End

BACK in the days of the old "knuckle-busters," outboard boatmen often had to be part time mechanics if they wanted to get in a whole day of boating. But modern outboards are quite different. Now it's to the point where a man, woman or child can turn a key to start the engine, push a button to shift into gear, nudge a lever to accelerate and do all this while sitting in a comfortable seat behind an automotive type steering wheel and wrap-around windshield.

No doubt about it, recreational boating has come a long way. Today, in fact, many outboard skippers have never seen their engines with the motor covers off. All this is fine but, according to Bill Smale, chief engineer at Evinrude Motors, it still pays to know something about minor problems you may encounter and how to correct them.

What do you do if your engine won't start? First check the fuel system, says Smale. Make sure the tank is not empty and the fuel lines are not kinked. Also check to see that the line is connected at both ends and that it is not being pinched under a tank or at some other spot.

If a warm engine won't start, chances are it's flooded. To remedy this, disconnect the fuel lines at the motor, advance the throttle and pull the starter rope several times. Then reconnect the line, squeeze the priming bulb and give it another try. This should do it.

Rough idling is another common but easily corrected problem. Turn the low speed carburetor setting knob slowly until the engine smooths out. Defective spark plugs and improper fuel mixtures can also cause rough idling.

If the motor is sluggish at full throttle, poor spark plugs are most likely the answer. If inspection shows them to be fouled or burned, they should be replaced. Plugs can also be cleaned but for the small cost involved, it's a better idea to put in new ones. Poor high speed performance can also be caused by other factors which can usually be quickly found by a qualified marine dealer.

Excessive vibration while the boat is underway is often due to a bent or broken propeller. If the propeller is good, check to be sure weeds have not caught on the lower unit. Propellers are a subject in themselves and it's a good idea to have them checked periodically. At the same time, ask the dealer if the propeller you are using is right for the boat and the load you are pulling.

These are basic answers to a few common problems. They won't apply all the time, says Smale, but they will give you a place to start. Leave the servicing and major repair work for the experts but know enough so that you can handle minor adjustments yourself. Besides being practical, you'll find it will make your boating more fun.

It doesn't take much imagination to figure out this fellow's problem—he's out of gas. One of the rules of the boating road is that a boatman will always help another boatman in distress. Lend a helping hand or a gallon of fuel when needed.

Cruising with Boat and Car Doubles Jun, Reduces Cost

Here's an idea that is becoming quite popular in all parts of the country. It involves cruising with a second family and a car. Let's say you and your friends, whom we'll call the Joneses, are both interested in boating. You can both arrange your vacations at the same time and you can decide on a cruise area. If this is the case, get set for a wonderful vacation.

Here's how it works. You both start at point A. You and your family take the boat and set out for point B. The Joneses leave by car and agree to meet you later that day at a predetermined time and place at point B. The next day you alternate; the Joneses take the boat and you drive the car. This continues until you have reached your destination. On the way back you plan it so the family that traveled a specific area by boat will now travel it by car and vice versa. That way, both families have a chance to see the entire area both by car and boat.

Many families find this an ideal way to cruise. It cuts the costs and doubles the fun. It does take quite a bit of planning, however, to coordinate the meeting times and places. But planning is half the fun of doing.



Jo Really Unwind . . . Give Lazy Boating a Jry

UT the grass, wash the car, go shopping, get up early, work late and hurry! These words are about as smooth and soothing as a shot of 15¢ bar whiskey. They're downright irritating, in fact. But unfortunately, they have become quite familiar to most of us.

It's a wise man who knows when he's had enough and decides it's time for a day of complete laziness. A day when he says the heck with it all; I'm going fishing and I hope the fish don't even bother me. It's his own brand of relaxation tonic and it's usually a very effective one.

One of the best ways to get away from it all is with a boat. Although much has been written about the joys of family boating, occasionally a man likes to get out by himself. He looks for a quiet spot where he is not likely to be bothered by anyone—a spot where he can relax completely and be just plain lazy without having to worry about it. What better way to find that spot than with a boat?

This is not boating as it is usually thought of. This is lazy boating and it usually includes fishing. It's not that the fellow really cares if the fish bite or not. It's just that it gives him a good excuse to get away, stretch out in the boat and let the rest of the world go by.

The next time you feel fed up with it all, grab your fishing pole and head for nearest waterway. Find a cozy secluded spot and forget about everything. You'll never find a relaxation tonic more pleasant to take.

Watch the Stern When Pulling Away From Pier

NLIKE an automobile, the back end of a boat responds first to a turn of the steering wheel. Keep this in mind when pulling away from a pier. If the boat is snugged against the pier and the steering wheel is turned too sharply, the stern can swing into or under the pier. Either push the boat away from the pier before accelerating or leave the pier at a slight angle until the boat is clear.

Be Alert For Obstacles When Boating in Shallows

WHEN boating on shallow and unfamiliar waterways, keep both eyes on the water dead ahead and one hand on the throttle. Be alert for underwater obstructions such as submerged logs, stumps and rocks. Steer clear of suspicious looking areas. If you see you are going to run onto something, cut back on the throttle until you have passed over the obstacle. Engineers caution that even though your outboard motor may be equipped with a slip clutch, damage to the propeller or even the motor itself can occur if it strikes a solid underwater object.



SMALL CHILDREN and nonswimmers should be fitted with an approved lifesaving vest. Make periodic checks to be sure all lifesaving devices aboard ship are in good shape to do the job they are intended for.

Outboard Boatmen Should Have Knowledge of Ropes

WHEN it's in a coil it's called rope. When it's cut into lengths for use aboard a boat, it becomes line. But don't let this confuse you. The important thing is that you know your ropes and how to use your lines.

Good lines are a must for every outboard boatman. Even the skipper of an eight foot fishing pram must rely on his lines when anchoring. The water skier is towed with a line. And lines, of course, are very important to outboard cruising enthusiasts.

Boatmen can choose from four basic types of rope: Manila, nylon, Dacron and polyethylene. But before buying rope it's a good idea to understand the difference.

Manila rope, the old stand-by, has some advantages. It's the most economical to buy and is easy to handle. However, it is susceptible to rot and is not as strong as some of the synthetic ropes.

Nylon rope, while being stronger than Manila, is more expensive. It is also quite elastic which can be good or bad depending upon the use. Its elasticity makes it desirable for mooring and anchor lines but not satisfactory for water ski tow lines.

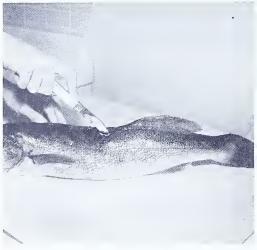
Dacron, like nylon, can be stored wet. It is stronger than Manila but not as strong as nylon. It does not have the elasticity of nylon.

Polyethylene is the water skier's favorite. It floats, is quite inexpensive, is not elastic and is stronger than Manila rope. Because of its flotation qualities, it seldom gets tangled in the propeller when used as a ski tow line.

If you don't know the ropes, ask a dealer for his recommendation. Make sure the rope you buy is stout enough to do the intended job and still provide a margin of safety.

Fillet Your Catch By DON SHINER

A walleye was selected to show how to fillet your fish. Trout, bass, pickerel and yellow perch and others can be cleaned in



ST STEP . . . cut through skin from head tail along dorsal fin. This operation calls a SHARP knife.



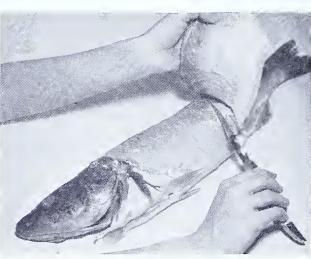
CUT DIAGONALLY across the side, in rear of gills, from head to pectoral fin. You need not scale the fish.



CUT SKIN along belly, head to tail. the skin with the scales intact.



KNIFE to lift edge of skin, then peel back toward the tail. Skin peels easily m freshly killed fish. Cut white meat ich clings to skin.



REMOVE SKIN this way in two long pieces. It makes the meat actually taste sweeter!



WITH SKIN laid over tail, run the along backbone from tail to head, cit fillet from body of fish.



WHEN FILLETS are freed, discard remaining sections . . . head, tail, entrails and backbone. It takes a little practice but it gets easier as you go along with nice cuts and very little waste.

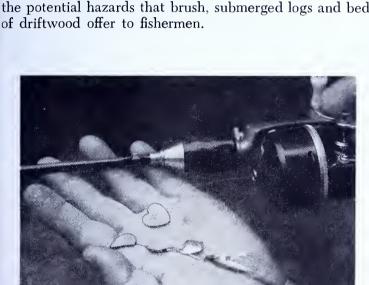




The New Twist Fly

A NEW twist lure to put action into your bass fishing this summer is a tiny spinner lure with an "up-side-down" fly. This reversed fly is simply a streamer or bucktail which has had the wings twisted around the shank until this appendage now covers the point and barb. The result is a spinner/fly combo that is practically weedless. It can be chucked right into the midst of a brush pile or weed bed without fear of becoming hooked in this debris. Yet, when smallmouths belt the lure, the feathers in no way interfere with the hook's point. The fish is solidly hooked.

Add a split shot or a keel sinker to the line for extra spin cast distance with this feather light lure. Then disregard the potential hazards that brush, submerged logs and beds of driftwood offer to fishermen



ORDINARY spinner and fly combinations are used. Twist the wings on the fly until they are on the underside, covering the point and barb of the hook. It makes a weedless outfit. Add a keel sinker for greater casting distance.



UP-SIDE-DOWN FLY will crawl over logs, thru grass and pads without getting snagged. The whirling blade sets up a vibration highly attractive to bass and other fish.



BRUSH PILE, snags and sunken logs are potpie for the twist fly. Big bass are often found in these tough-to-fish spots.



SMALLMOUTHS are suckers for the tv fly.

Don't' Get Joo Well Done The First Day Out

AFTER a long cold winter the first warm day at the beach ean be one of the most exciting experiences of the summer. Or it could be one of the most unhappy.

Most of us expect overnight to turn into beautifully tanned gods and goddesses. But trying too hard the first time may find us in a hospital bed unable to move.

Suntan lotions and creams are helpful protections but are not a substitute for gradual exposure. A warning to elderly persons and patients with tubereulosis, heart disease or other serious illnesses—consult your physicians before any sun-bathing since exposure to the sun can be harmful in certain special cases.

The only way to prevent sunburn is by gradual exposure to the sun, starting with a 10 to 15 minute sunbath in the late afternoon or other times when the sun is not too hot and slowly increasing the time and the intensity of the exposure.

Too long exposure can mean not only sunburn but also sun and heat strokes. The symptoms of sunstroke and heatstroke, produced by too much exercise in the hot sun, are the same: headache, fever, complaint that things look red. Such strokes can be fatal. A physician should be called at once. Clothing should be loosened and the victim kept as cool as possible until the physician arrives.

Heat prostration also is caused by getting overheated, but instead of developing a high fever, the victim becomes eold and clammy. Prompt medical attention and keeping the patient as warm as possible until a physician arrives are important.



TAG #T14130—Walter LeVere, left, caught this 44½-inch, 20½-lb. muskellunge at Conneaut Lake on May 11, 1963. Dave Black, right, was LeVere's fishing partner.



MAY 16, 1958, was a beautiful spring day and the fishermen at Conneaut Lake were out in numbers. About 10:30 a.m. someone noticed a large truck backing down to the water's edge at the Shore Acres Beach and someone else shouted, "Oh boy, a load of fish for stocking the lake."

Soon a large crowd gathered and the driver brought out a large, deep net. Dipping down into the tank truck, he came up with a long, slender fish of about 30 inches and handed it down to the fish warden who immediately walked to the end of the dock and carefully released the fish into the waters of Conneaut Lake. Three more times this same operation took place and each time another musky was released into the lake. As the last one was being liberated, someone noticed a small, shiny tag on the dorsal fin of the fish and asked the reason. The driver explained that all of the fish had been tagged by the biologist at Erie before they were placed on the truck. He further explained that each tag bore a number which would be recorded at the regional field office and the Benner Spring Fish Research Station at Bellefonte, and that if these fish were caught later and the tags sent to the Fish Commission much valuable data would be obtained on the growth of muskellunge in Conneaut Lake.

The Time changes. It is now five years later—May 11, 1963, a far different day, in more ways than one. The weather was cold and a stiff wind was blowing out of the west. The only bright thing about the day was the fact that it was the opening of the musky, walleye and northern pike season in the inland waters of Pennsylvania and many of the more hardy fishermen were hard at work trying for the greatest of all freshwater prizes—a musky.

District Warden Ray Hoover was out in the patrol boat checking fishermen when he pulled up to a boat with two men in it whom he had seen struggling with a very large fish. The lucky angler turned out to be Walter LeVere of Evans City, Pennsylvania, who proudly displayed a 44½ inch musky weighing 20½ pounds. Hoover went over the



TAG #14117—Fred Phelps, Jr., caught this 42-inch, 22-pound musky at Conneaut Lake also on May 11, 1963.

fish very carefully, taking a sample of scales from the side of the fish and examining it for other markings. No tag was in evidence but he noticed a small growth on the first two rays of the dorsal fin about the size of a dime in circumference and almost perfectly round. Thinking that the fish had been injured slightly at some time, he congratulated the fishermen and proceeded on up the lake.

Within a few minutes he came across Fred Phelps, Jr. and his younger brother who reside on the east side of Conneaut Lake and who are both ardent fishermen although Fred, Jr. only recently reached his seventeenth birthday. Fred, Jr. proudly informed Hoover that he, too, had been successful and immediately produced another beautiful specimen measuring 42 inches and weighing 22 pounds. Again Hoover took scale samples and looked the fish over carefully, found no tag showing but again noticed a pronounced lump on the first two rays of the dorsal fin. Somewhat puzzled, he congratulated Fred on his fine catch and proceeded on across the lake to check other catches.

About 4:00 p.m. Warden Supervisor Sheldon received a phone call that a seventeen year old boy had caught a large fish and had it at his home on the east side of Conneaut Lake. Sheldon was anxious to get a picture of the fish and immediately drove to the Phelps' home to photograph the fish. While admiring the fine specimen he, too, became curious about the lump on the dorsal fin and asked Phelps for permission to examine it closer. With a penknife he attempted to cut into the small growth and found it was a very tough ball of tissue having something very hard in the center. After several minutes he came up with a small metal tag bearing on one side the initials P.F.C. and on the other side the number T14117. Returning to his headquarters Sheldon immediately looked up the tag number and sure enough, it was one of the four muskys released on May 16, 1958.

But the story does not end here. About 8:00 p.m. Warden Hoover stopped at Sheldon's office to go over the events of the day and was not overly surprised when told that inside the growth on the dorsal fin of the fish there was a tag. When he informed Sheldon that the other

fish also had a small growth in the same place, they both immediately returned to Conneaut Lake and to the cottage of Homer LeVere. Receiving the usual excellent cooperation from Mr. LeVere they were soon on their way back to Conneautville with tag bearing PFC T14130. They were, of course, anxious to learn the history of this fish and a check at the field office brought the surprise of a lifetime. This was another of the four fish which were stocked on May 16, 1958!

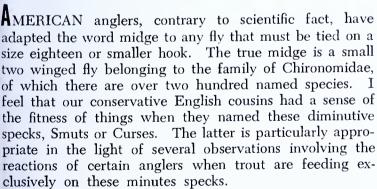
Muskys bearing tag numbers T14107 and T14184 are still in the lake or else they have been caught by some lucky fishermen who have failed to find the little metal tag on the first and second rays at the base of the dorsal fin. The scale samples will, of course, show our biologists the exact age of these two fish but the fact that one was 24½ inches and the other 30 inches when stocked will give them very valuable information on the growth of these fish since they became residents of Conneaut Lake on that sunny day in May 1958.

Records at the field office in Conneautville show that several hundred marked muskys have been planted in the waters of Conneaut Lake as well as many other waters in the State. Many were not tagged with a metal tag but instead had a fin removed. So, Mr. Fisherman, if you catch a musky, northern pike, walleye or bass, please examine it very carefully and if it has a tag or a missing fin, report it to your nearest Fish Commission representative. In doing so you will contribute valuable information toward fishery management in Pennsylvania.

S. CARLYLE SHELDON, Regional Warden Supervisor, Pennsylvania Fish Commission.

Smuts,
Curses,





I answered the telephone one evening to hear the voice of one of my angler friends, vibrant with excitement. He had just returned from one of the less frequented stretches of a limestone stream and had found the trout cooperative beyond all reason. Would I care to come the next evening? Although experience in such matters have made me a skeptic I accepted his invitation.

Instead of the larger flies of the day before we found the trout feeding on a tiny black midge. My friend cast his choicest patterns while trout fed all around, occasionally swamping the artificial with their rise to a natural. My friend had acquired a vocabulary that is rather colorful and expressive although perhaps not acceptable in polite society. As his exasperation grew his audible comments became more and more lurid.

I carry a box of these small flies for just such an emergency and when I had supplied him with some specimens and 6 X tippets for his leader he tried again. He had trouble seeing the artificial and as a result began striking at every flash of a fish. The result was a frustrating evening with only one fish to show for his efforts.

Several years ago we observed another angler who proved the effectiveness of the name "Curses." The locale was a wooded portion of Penns Creek. The time was an afternoon in late June. There had been sporadic hatches of both Black Midges and a tiny Blue Dun. The trout had cooperated in a way that would please any angler. We had used several patterns of flies. Eighteens worked well but 20 and 22 sizes were better. The sport had been so good that my companion and I had skipped lunch. By mid-afternoon we felt the need of both rest and nourishment so found a place in the shade of some streamside elms. An island of grass and willows screened our resting place from a pool we intended to fish a little later in the afternoon. Suddenly from the pool beyond the willows came a volley of expletives. My companion, sniffing a scent of fun in the air, waded to the island unseen, then parted the grass and peered through. He motioned me to join him.

An angler with snowy hair and a bristling white mustache was building up his blood pressure by fruitless casting over at least a dozen rising trout. We watched him change flies at least nine times in a few minutes. All the while his exasperation was increasing. When a trout finally moved in and used the back of his boot for a breakwater, the angler kicked viciously at the fish, then splashed his way ashore and walked swiftly away. His sulphuric comments came back more and more faintly mellowed by distance. The waves that marked his passing had barely stilled when the pool was again ringed by rising fish.

My companion attached a No. 20 Blue Dun and took eight trout with ease. He killed one that weighed a bit under two pounds and released the others.

A feeding characteristic that is apparent when the midges are flying just above the surface is splashing. The trout will rise and splash with its tail. The tiny insects are knocked out of the air to flounder on the surface. The trout will then rise, deliberately pick them from the surface. This action has been observed by many anglers so soften we have come to believe it is a deliberate feeding pattern.

One of the best fish producing patterns as well as the easiest to tie is the Knotted Midge. This is an English pattern representing two midges falling on the water during the act of procreation. A strand of ostrich herl is tied around a No. 20 hook in such a manner as to cause the fibers to stand out at right angles to the hook. A band of tying silk divides the body into two parts. There are no wings or tail.

Another pattern that is a must is the Black Midge. This fly is tied with slate colored wings, black silk body and black hackle. A variation is tied with a gray silk body. I occasionally add a long tail consisting of just two black hackle fibers adding something to the appeal of this fly. There are two Blue Dun midges tied with tiny slate wings and blue gray hackle. One has a body of muskrat under fur, the other has the fur dyed green which produces a slate green body. When the tiny gray duns are on

17

the water these flies will produce rises when the other small ones fail.

Unusual patterns sometimes turn the trick when the imitation of the naturals fail. For this reason I like to carry a supply of Royal Coachman in size 20 and 22. This is a particularly effective pattern on deeper, still waters.

During certain seasons of the year the silver maples and other streamside trees are infested with aphids. The winged adults are dislodged and fall into the stream. Trout take them avidly. Whether the sweetness of the honeydew produced by these insects accounts for the greed with which the trout take them is a question I cannot answer.

For an imitation I spin white rabbit fur on blue tying silk and build a football-shaped body on a No. 20 hook. If you wish to add a tiny pair of light stub wings and pick a few hairs from the body with a dubbing needle to serve as hackle it will not detract from the effectiveness of the lure.

The larva of the midges resemble tiny worms and live in slime tubes either attached to the bottom or to rocks in the stream bed. They are red, yellow, white and green. The pupae rise to the surface, hatch into the winged adults with enlarged thoraxes. If a bit of dark chenille is added to the worm-like body and topped with some sparse gray hackle to imitate the respiratory filaments the imitation, fished wet, will entice fish during the hot summer months when fishing it slow. This may account for the popularity of the old Gray Hackle yellow that our fathers valued as a taker of trout.

One of the memories I cherish is of a beaver dam located on the head of a mountain brook where the brookies had grown to considerable size. After trying a great number of patterns I finally attached a No. 20 Royal Coachman and found success. The trout rose with deliberation and took it without caution. When I returned a year later the beavers and trout were gone and the dam broken, yet this tiny fly has proved its worth may times since. I find stillwater feeders are still susceptible to this bright bit of fluff.

-Albert G. Shimmel



HERE'S HOWDY AGAIN!

OWDY, the Good Outdoor Manners Raccoon, is returning this year to resume the battle for a cleaner, finer outdoor Pennsylvania.

E. F. McNamara, President of the Pennsylvania Forestry Association, HOWDY'S originator and chief sponsor, has announced that this year's project will be a word building contest open to all the school children of the state. The contest will be conducted shortly after the opening of the fall term of the 1963-64 school year.

In the contest, the young people will be asked to form as many words as they can from the sentence, HOWDY SAYS HAVE GOOD OUTDOOR MANNERS, using each letter only once.

Contest rules and the list of county and state prizes are being put in final form and will be announced later this summer.

The Association will defray the costs of the program through the sale of attractive, sturdy, durable school book covers, illustrated to tell convincingly the story of why Good Outdoor Manners are growing increasingly important as more and more people flock to the out of doors for recreation and other purposes.

As in previous years, the Pennsylvania Fish Commission expects to cooperate fully in the project.

Executive Director Albert M. Day has had a notice sent to all Fish Wardens and other field personnel, asking them to help in every way possible, including serving actively on the county committees that are being formed to carry out the contests in their local areas.

Other sponsors of the Good Outdoor Manners educational project include the Game Commission, Department of Forests and Waters, the Agricultural Extension Service, the U. S. Soil Conservation Service, the Federation of Women's Clubs, the Garden Club Federation, the Federation of Sportsmen's Clubs, and the Pennsylvania Division of the Izaak Walton League of America.

McNamara announced that the Forestry Association has asked William Voigt, Jr., to serve as the program director this year. Inquiries regarding the Good Outdoor Manners educational project may be addressed to Voigt at P. O. Box 178, Bowmansdale, Pa.

Fish Commission to Receive Federal Aid Funds

A PRELIMINARY distribution of \$12,600,000 in Federalaid funds will be made available to the States July 1, 1963, for fish and wildlife restoration projects, Secretary of the Interior Stewart L. Udall announced today. The similar division a year ago was \$12,350,000. The Pennsylvania Fish Commission was apportioned a total of \$52,350.81.

The balance of the Federal-aid funds will be apportioned during the fall of 1963, but the Department did not indicate the possible total. For the past five years wildlife restoration funds have averaged \$14.8 million annually and fish restoration funds approximately \$5.3 million each year.

Of the \$12,600,000 just allocated, \$10,200,000 is for wildlife restoration and \$2,400,000 for fish projects.

Secretary Udall said that early distribution is being made

again this year to help the States better program their Federal-aid activities.

"Early distribution is of special importance to those States operating on a revolving fund basis," the Department explained.

Under the Federal-aid programs for restoring fish and wildlife, States spend their own funds on approved projects and are then reimbursed up to 75 percent of the cost. Many States have exhausted or soon will exhaust their Federal-aid funds for programming their projects for the next fiscal year, which begins July 1.

Federal-aid funds come from an excise tax on sporting arms and ammunition and on fishing rods, reels, creels, and artificial lures. Distribution of the two funds is made on formulas based upon the number of paid license holders in a State and on the State area, as spelled out by law.

Laws establishing the Federal aid to fish and wildlife restoration programs also provide \$10,000 each for such projects on Guam, Puerto Rico, and the Virgin Islands. The total funds these territories are entitled to for the fiscal year 1964 is included in the preliminary apportionment made today. The Federal aid acts are administered by the Fish and Wildlife Service's Bureau of Sport Fisheries and Wildlife.

Pennsylvania Junior

Conservation

Camp Opens



MORE than 170 high school boys are enrolled this summer at the Pennsylvania Junior Conservation Camp, sponsored by the Pennsylvania Federation of Sportsmen's Clubs.

The Camp, which will mark its 16th year this summer, opened June 23 and will continue through August 17, during which time four groups of boys will spend two weeks each in camp.

As in past years, the camp site is in the Stone Valley Recreation Area of the Pennsylvania State University, located at RR 1, Petersburg, in Huntingdon County, about 15 miles south of the campus.

Charles W. Stoddart, Jr., director of physical education continuing education at Penn State, will again be director for the camp and Fred Carpenter, of Bloomsburg, will return for his second year as head counsellor.

The camp is planned for high school freshmen and sophomores who are leaders in their schools and who have an interest in conservation education.

It offers them a chance:

- 1. To learn the conservation or wise use of our natural resources—soil, forests, water, minerals, wildlife;
- 2. To profit from a rich camping experience while studying conservation education;
- 3. To prepare for citizenship and service in home communities;
 - 4. To learn to live, work, and play together;

- 5. To develop interests in outdoor hobbies and activities; and
- 6. To prepare young leaders in the conscrvation education of the various communities of the State.

The instructional program for the camp includes work with firearms, game and fish management, forest management, soil conservation, camperaft skills, leadership techniques, and enjoyment of outdoor living. There will also be instruction in ropecraft, gear and shelter, firecraft, tool craft, boating, canoeing, and sailing the Tech dinghy.

To be enrolled for the camp, a boy must be sponsored by a sportsmen's club or conservation agency. Information on sponsorship and financial support by a sponsoring organization may be obtained through sportsmen's clubs in the home area or through Division chairmen, Mr. Stoddart explains.

Divisions and dates for each to send quotas to the camp are:

Northeast and Southeast—June 23 to July 6. Southern and Northwest—July 7 to July 20. North Central and South Central—July 21 to Aug. 3.

Southwest and Central—Aug. 4 to Aug. 17.

Slippery Rock Creek Watershed Samplings Completed

HE Pennsylvania Department of Health has announced that a study of samplings taken to check the quality of stream water and mine drainage on the Slippery Rock watershed has been completed.

The study will help determine what can be done to improve water quality on the watershed, Dr. Lewis D. Williams, the Department's regional medical director with headquarters here, said.

Mine drainage from all mines, both active and inactive, will be investigated by regional sanitary engineers and water pollution specialists, Dr. Williams said.

To provide a complete picture of stream conditions, local fish wardens will conduct a fish survey and biologists from Allegheny College will cooperate by analyzing stream bottom samples.

The Slippery Rock Creek watershed has 1,300 mines in its 400 square mile area. Since coal was mined in the area for more than a century before clean streams legislation was enacted, over 400 of these mines have unregulated discharges.

The closing down five years ago of a limestone plant in Boyers caused water quality in one section of Slippery Rock Creek to deteriorate, Dr. Williams said. The section of stream is between Pa. Route 308 and U. S. Route 19.

He explained the deterioration came when the plant no longer discharged limestone washings which used to neutralize acid coal mine drainage.

While making the stream quality study, health department engineers determine: (1) which coal seams are producing the most mine acid drainage; (2) what effects different types of backfilling have on the quality of the discharges; (3) what measures can be taken to correct individual mine discharges.

After the study is analyzed, the engineers will recommend to the Sanitary Water Board measures to help correct conditions, Dr. Williams said.



On Saturday, May 18, 1963, I observed an angler hook into a big fish at Chapman Lake. From the way it fought I knew it was a nice one and I thought it had gotten away. I approached the angler and sympathized "It's too bad you lost that fish." "I didn't lose it . . . I released it. It was a big pickerel at least 28 inches long and I could have won a prize with it, but since the season is closed on pickerel, I released it." I informed him the season opened on May 11 and he could have kept the fish. The man sat down and started to either bawl or talk to himself. That angler was a good sportsman to release the fish thinking the pickerel season was closed.

-District Worden WALTER G. LAZUSKY (Lackawanna.)

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The American shad run in the Delaware River has brought about a big change in the river. Late April anglers have found the river able to produce some very good catches of walleye and smallmouth bass. The season on these species is open the year around in the Delaware. If the shad aren't hitting I have seen many anglers come up with good stringers of walleye and bass.

-District Worden HARLAND F. REYNOLDS (Wayne).

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While in Bedford Valley, Game Proector William Shaffer and I talked to James Miller about hunting and fishing thereabouts. Miller made the statement that he quit buying a fishing license but does buy a hunting license. He reasoned that when you come back from hunting and don't get anything you can always say there's nothing there but when you're fishing and can actually see the fish swimming around and then can't get them to bite, you cannot say there are no fish . . . so I just quit fishing.

-District Warden WILLIAM E. McILNAY (Bedford).

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The Dclawarc River has been alive with angling activity from the tidal area at Penn Manor Estate in lower Bucks County to the Delaware Water Gap in Northampton County. It all came about when the herring made their appearance in the area of Penn Manor near Morrisville and, according to Edward Balderston at this place, the run started about the 11th of April; also verified by others at the area. Special Warden Joe DeSau had been getting reports of small sturgeon being caught by anglers fishing for suckers below the Penn Manor Club at Morrisville and near the Fairless Hills steel mill. The shad started to come on about April 19. On April 21, John Sawchuk, Easton, Pa., caught a 22-inch roe, weighing five pounds, which produced a pound of roe. Sawchuk caught the fish at Easton in the fast water under the railroad trestle of the Jersey Central Line on a dart.

-District Worden MILES D. WITT (Northampton and Bucks).

#

On Saturday, April 20th the Union City Hatchery had several muskellunge fishermen from Edinboro Lake looking over the brood stock of muskies taken from Edinboro Lake. One 48-inch, 28-pound female musky that had her eggs taken was placed in a tank with a dark lid on top. By lifting the lid by the corner and motioning for this fish, she would come swimming to that corner of the tank with her back out of the water and lay there, allowing her back to be stroked. This fish really seemed to like men! Now . . . if any fishermen at Edinboro Lake this summer, are seen making soft, stroking motions on the water, it's only that female musky getting her back scratched.

—District Warden NORMAN E. ELY (Erie).

From a Warden's Mailbag LETTERS TO DISTRICT WARDEN WILLARD G. PERSUN

Dear Sir:

Thanks for the information concerning fishing from the Dam Breast. I will tell anyone who asks me about it, and we appreciate the way things are going at Hunter's Lake. It's the best Lake around here as far as we are concrened for fun and fishing and sure do appreciate the fact of being allowed to keep a boat on it. The foliage around the lake is more interesting than any other lake in Pa.

Thank you very much.

Sincerely yours,
Donald A. Audieur

Dear Sir:

The information you requested in order for me to obtain a mooring permit is as follows: Length—12 ft. width approx. 54", can seat 5, and is built of plywood.

I think Hunters Lake can be made into an excellent fishing lake. I spent a lot of time there this summer fishing for pickerel and find it rather poor, although there are some nice bass there

Any information concerning stocking of the lake in the future will be greatly appreciated. It will be passed on to the consolidated sportsmen of Muncy Crcek, who are also interested in this lake.

It provides a place where a working man can go fishing without costing him a fortune.

So here's hoping for better fishing.

Yours truly, Richard E. Feusternachier Muncy, Pa.

Dear Sir:

I am told that you are the person that can give me a permit to moor boats at Hunters Lake in Sullivan County.

I have had two boats there since before the Fish Commission bought the lake.

I understand that now I must have a permit to keep them

The information that I was told I must furnish you is as follows, as both boats are nearly the same.

Boat Width—about 48" Length—15½' each

Type—row boats

Seating Capacity—3 persons cach

Construction Material—wood

The estimated value of each would be about \$20.00 each. If there is any cost or any other information you need, please let me know.

I appreciate what the Fish Commission is doing at Hunter's Lake. I have fished this lake for nearly the last 12 years.

It is one of the most beautiful and peaceful lakes in this part of Pennsylvania.

I sincerely hope it stays that way.

Sincerely yours, Carl O. Breisch Bloomsburg, Pa.

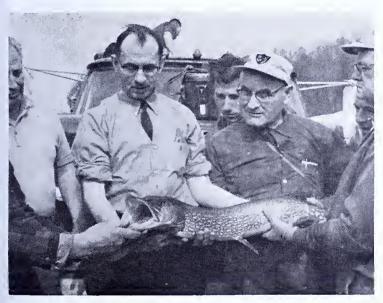
Dane Hawk, Evans City, Pa., informed me that when trout were hard to catch he used corn curls and took five trout in an hour when the rest of the fishermen had little luck on other bait. Wonder how potato chips would work?

-District Warden CLIFTON E. IMAN (Butler and Beaver).

GLENDALE DAM, PRINCE GALLITZIN STATE PARK OPENS



COMMISSIONER JOSEPH M. CRITCHFIELD releases the first fish stocked in the 1,640 acre lake now open to public fishing.



ADULT NORTHERN PIKE, one of the first to be stocked in Pennsylvania waters, was released at Glendale Lake, Prince Gallitzin State Park. Holding the big fish are (left to right), Gordon L. Trembley, Chief Aquatic Biologist, and Southwest Regional Supervisor Minter Jones, Pennsylvania Fish Commission.

#

The opening day of trout season was warm and sunny and perhaps a record-breaker for the number of anglers out. Here and there the bushes were decorated with shirts, pants and socks hung by fishermen taking their usual trout season dunkings.

-District Warden KENNETH G. COREY (Warren).

Commissioner Joseph M. Critchfield Stocks First Fish

MORE than 300 persons saw Fish Commissioner Joseph A. Critchfield of Confluence, Pa., stock the first fish in Glendale Dam at Prince Gallitzin State Park recently. Two truckloads of adult northern pike, black crappie and largemouth bass were released in the initial stocking of the 1,640 acre lake which opened to public fishing on May 11, 1963. The trucks carried approximately 200 northern pike ranging in size from 20 to 36 inches; 160 black crappies, weighing a pound each, and 40 largemouth bass up to 20 inches in length. It was the first time adult northern pike had been stocked in Pennsylvania waters.

Commissioner Critchfield said there would be additional stockings of muskellunge, northern pike, bass, walleye, crappies and channel catfish fry or fingerlings in the lake during the early summer months. It was added it will take 2 to 3 years for the fry or fingerlings to attain legal size but in the meantime, sunfish and bullheads could be harvested.

Other officials attending the opening event were: Minter Jones, Southwest Regional Fish Warden Supervisor; Pennsylvania Fish Commission District Wardens—Frank Kulikosky, Cambria County; Arthur L. Walker, Indiana County; Claude Baughman, Blair County; Game Protector G. A. Miller, Pennsylvania Game Commission; Carl White, president of the Pennsylvania Federation of Sportsmen's Clubs and William Barnhart, Superintendent of Prince Gallitzin State Park, Department of Forests and Waters.

Frederick K. Riedel, Fish Hatchery Pioneer, Dies

REDERICK K. KIEDEL, 76, died on May 27, 1963 at Linesville, Crawford County, Pa. He was employed by the Pennsylvania Fish Commission August 1, 1907 and was in continuous employment for 44 years. He served with the Armed Forces in World War I.

He was appointed superintendent at the Union City Hatchery on January 12, 1922, serving there until June 1, 1935 at which time he was transferred to Pleasant Mount hatchery where he remained until June 20, 1939. In June, 1939 he was assigned as the first superintendent of the Linesville Hatchery which the Commission was constructing on the Pymatuning Sanctuary. He served in this capacity from June 20, 1939 until his retirement on May 1, 1952.

Linesville Sportsman Dies

ALPINE W. McLANE, the man generally credited with coining the phrase "Linesville, where the ducks walk on the fishes' backs," died Friday, May 10, 1963, at Mcadville Spencer Hospital. He was 70 years of age.

The ducks and fish slogan has made Linesville one of the top tourist attractions in the United States. Mr. McLane picked it up when he noted that when bread was thrown into the water near the spillway that both fish and ducks fought over it, that the fish would boil up in the water so solid that the ducks were left without any place to swim, so they would get up on the fishes backs and walk. He wrote to Ripley about it, and subsequently Believe It or Not gave it top billing.

Dear Sir,

I have read the Angler for many years and enjoy your articles on fishing and boating. But your magazine tends to be one sided on the Fish Commission policy. I realize that you are in no position to crticize the Commission but you should be able to defend them.

Why not a letter to the editor? A page or pages in the Angler where a fellow can express his likes, dislikes or suggestions, perhaps his problems pertaining to fishing and boating.

I read (The Conservationist) put out by New York State which is one of the finest magazines I have ever read. This magazine is open to criticism and I really enjoy and learn a lot reading these letters to the Editor.

I don't believe that raising the license fee will solve all our problems in the Fish Commission. Somewhere down the line we must have had poor management, but after all we are all still human! Let bygones be bygones.

I believe that the Fish Commission is now ready to give us fishermen a fair shake. I am for an increase in fishing license. I will always buy a fishing license. I realize that as wages go up so will the cost of running the Fish Commission.

I am also in favor of a raise in hunting licenses. Following are a few of my own ideas which might help fishing:

- 1. Go back to the license in pocketbook, that is, do away with the inconvenience of carrying an outer garment.
- 2. On any trout stocking after the first day keep the stream closed to the following Saturday so as to give everyone a fair chance, thus discourage truck following.
- Or stock these trout in fenced-in areas such as on Kinzua Creek,
- 4. More warm water fish stocking, especially in the Allegheny River where the pressure is increasing each year. Black bass needs the most help.
- 5. Don't introduce a trout stamp. Work this out in the Commission so that each fisherman is helped whether he be a bait, artificial, warm water or trout fisherman.
- 6. A free lieense for our senior citizens.
- 7. Retaining boating within the Fish Commission.
- 8. Striet laws on littering our streams.

A Fisherman, Edward R. Hill

Mr. Hill, we frequently use letters written by ANGLER subscribers, and you may be sure that they are not necessarily favorable to the Commission.



RING-AROUND-THE-ROSIE has been all broken up between these characters by this time because crayfish are at, or near the top of the menu offered Pennsylvania bass!



Dear Sir,

My initial copy of your magazine arrived the other day, and I am very pleased with the contents. This was the May 1963 issue, and I was impressed by the pictures on page 24 of various good catches of extra large fish in Commonwealth rates.

One thing disturbs me, the picture showing 3 "Nice Walleyes" taken from the Delaware River lists the bait used as "LAMPREY EELS." Is this bait legal? I thought lamprey eels were not allowed because they are deadly fish parasites.

Sincerely,

David G. Fridirici, V.M.D.

Dear Dr. Fridirici:

In reply to your letter of May 7th we wish to advise that lamprey cels are legal bait to use in Pennsylvania waters. These fresh water lampreys are the young of the sea lamprey. Sea lampreys run the Delaware River annually to spawn in headwaters and tributaries. The adults die after spawning. The young live in mud bars for several years before leaving fresh water to return to the sea. They live principally on insects and are, therefore, not considered a detriment to our streams in Pennsylvania, since they are not a parasite to our fish in fresh waters.

Trusting this is the information you desire, I am

Very truly yours,

W. W. Britton

Chief Enforcement Officer

Trout Fisherman at 93

GETTING comfortable on a porch chair, J. B. Riddell, Williamsport, an amiable old-timer of 93 years, leaned back and began spinning a yarn that dated back nearly that far.

"The first time I went trout fishing was in July, 1883," the 5-foot 4-inch Williamsporter quickly recalled when asked when he first wet a line. A 1963 fishing license peeked from his hat band.

"It was in Kettle Creek, Potter County," he continued, "A wonderful stream at that time.

"My dad, Charles Riddell; Capt. J. E. Potter—then Jersey Shore postmaster—and I left Jersey Shore in a lumber wagon Saturday and arrived at what is now Rudy Nichol's place at 6 p.m. Sunday, about 65 miles.

"We camped there a week, fishing and living in a tent. I remember cattle running loose and myself chasing them at the time."

Born at Larry's Creek on July 9, 1869, Mr. Riddell still fishes for trout, one of his main interests. When the season opened a few weeks ago, he left home at 1100 Market Street—where he lives with his daughter, Mary—and headed with a friend to Love Run Hunting and Fishing Club, a mile above Little Pine Creek Dam.

Bit by bit . . . every litter bit hurts!

KEEP AMERICA BEAUTIFUL!

"I didn't do any fishing though," he confessed, pointing to "tired legs," although he walks without a cane. A member of the club 40 years, the old-timer admitted to catching 62 trout last season.

"An every day garden worm is as good as anything," he said of his bait. "But I like to use the belly fin off a trout. It's a good bait sunken or on top of the water—once you catch the first trout."

He also had a comment about a bill introduced in Harrisburg to provide free fishing licenses to persons 65 years old or more:

"If they want to give a license to a crippled soldier or someone like that, I'm in favor of it. But if you can't pay your fee and help stock the streams you might as well not go fishing."

Approaching 94, Mr. Riddell intends to go on fishing.

Fish-a-Thon Big Hit at Hatfield

ATFIELD, PA.'s annual "Fish-a-Thon" was a big success with about 150 boys and girls turning out for the event held under perfect skies on Bergey's pond recently.

Chairman Al Procopio, of the Jaycees—sponsors of the event, reported that many fish were caught during the four-hour period of the contest. The fish caught were catfish and sunfish.

The Jaycees had stocked the pond with about 100 sunfish a few days before the fishing derby took place, and on Saturday morning they added 150 catfish to the pond. Bob Kirpatrick, a Jaycee member who was assisting Procopio, said that the catfish put into the pond were all as big as 12 inches or bigger.

The "Fish-a-Thon" was open to all boys and girls in Hatfield borough and township. During the four-hour time period prizes were offered for the first fish caught during certain periods, the most fish caught and the biggest fish caught.

New State Park Proposed at Ohiopyle

REATION of a great state park in the Ohiopyle area took a giant step forward recently with the announcement that the Western Pennsylvania Conservancy had transferred 2,800 acres of mountain lands to the Department of Forests and Waters of Pennsylvania.

The properties acquired by the state extend for seven and one-half miles along the southern side of the Youghiogheny River from Sugarloaf Mountain to Jonathan Run.

Included are the thousand-acre Keister Park, with its two-mile-long trillium-lined Great Gorge Trail, the famed Cucumber Falls, and the sparkling rapids of the upper Cucumber Valley, and 1,650 acres of mountain lands lying between Ohiopyle and Sugarloaf Knob.



ALGAE FOOTBALLS

AVE you found a green slime clinging to your bass lures? The slime is algae, one of several hundred plants that grow in hair-like strands, and is a key factor in good fishing.

The plant uses sunlight and the carbon dioxide in the water to form starch, and returns to the stream the free oxygen necessary for fish life. When two algae filaments, weaving with the current, finally meet, conjugation tubes are grown, through which the protoplasm from one cell flows into the cell on the opposite strand, forming a football-like fertilized cell. These footballs are released and grow into more algae plants, ready to balance the water chemistry and, of course, foul your hooks.

When the pond becomes bone dry, the footballs can weather out the drought and from the spores within the new algae plants begin to grow when the water reappears. This is how the green slime so mysteriously appears year after year.

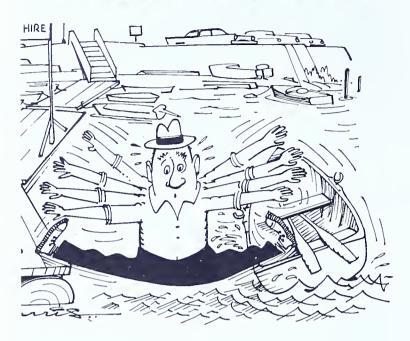
—DON SHINER

Rock 'n Roll Lakes

ROCKING and rolling of a lake is more fact than fiction. When the wind subtly exerts its force on the water surface and the waves roll, water is piled up on the far shore. Then, when the wind stops, the whole water surface seeks equilibrium and the lake stars to rock. The phenomenon will best be seen on the harbors and piers of big lakes. It looks like a small tide coming in and out.

Also, a big internal wave is set in motion. As large quantities of warm surface water arc piled up on the other side the cold water surface is depressed. The surface of the colder bottom waters begins to rock with even more amplitude than the surface.—Wisconsin Conservation.

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You Asked About It

By W. W. BRITTON

Chief Enforcement Officer, Pennsylvania Fish Commission

Following questions were asked through our mail bag correspondence. If you have a specific question or problem relating to fish laws and regulations, send them by card or letter to Editor, Pennsylvania Angler, Pennsylvania Fish Commission, Harrisburg, Pennsylvania.

OUESTION:

I have a farm pond which has many bass in it. How can I get a regulated fishing lake license for my pond?

ANSWER

It would be necessary for you to eradicate all fish presently in your pond, unless all fish in your pond were purchased from a legal source in the beginning. Eradication may be done by draining the pond down and poisoning the fish in it. This may be legally done by obtaining a permit from any salaried fish warden without cost. A regulated fishing lake as defined in Section 13 of the Fish Laws is as follows: The term "regulated fishing lake," as used in this chapter, means any artificial or man made pond or lake other than farm ponds or lakes as defined in Section 56 of this act, owned, leased or controlled in any manner by any individual, partnership, association or corporation, where fishing is permitted for payment of a fee, and in which all fish stocked are artificially propagated by commercial hatcheries or purchased from persons licensed to sell fish.

OUESTION:

How can I convert my farm pond into a baitfish propagation pond, whereby I can sell live minnows to fishermen or live bait dealers? And how much does such a license cost?

ANSWER:

If the original brood stock was not purchased in the beginning from a legal source, then the present minnows in the pond would have to be eliminated. In other words, you must start from scratch. Baitfish and fishbait taken from streams or ponds can not be sold. The cost for a baitfish propagating license is \$25.00, per year. A bait dealer who does not propagate his bait may secure a bait dealers license for the sum of \$10.00 per year. Both types of licenses are valid for the calendar year. Non-residents who wish to bring live bait into Pennsylvania for sale must secure a non-resident live bait dealers license for the sum of \$100.00. Resident live bait dealers who wish to bring bait into Pennsylvania must first secure a transportation permit at a cost of \$2.00 per year. All the above licenses must be secured from the Harrisburg office. A list of livebait propagators in Pennsylvania may be secured from the Harrisburg office of the Fish Commission without charge.

QUESTION:

In your May issue of the Angler in "You Asked About It," you have answered a question on fishing from a bridge on a highway, stating the landowner can arrest you for trespassing. Question: If I fish from that bridge or highway with a float on my line or a plug that does not touch the stream bed at anytime is that legal? That landowner does not own the water. I can not arrest an airplane pilot who flics over my property, because I don't own the air.

ANSWER:

You are right in saying the landowner does not own the water, but he does have control of the water which flows over the land he owns. Unless a stream has been declared navigable, past or present, the owner of the land has full and complete authority because it is on private property.

Commonwealth vs. Foster, 36 Pennsylvania Superior Court, 433 (1908). Reads in part, "As to private streams, the rule is that while the fish therein do not belong to the riparian owner or owners of the land through which the private stream flows, nevertheless the public may not fish therein."



A Monthly Feature For Young Anglers

MEET THE KINGFISHER

Fishing and bird watching go together like sneakers and jeans. Wherever you fish, on lake or stream, there are interesting birds in sight that glean their living from the water and shoreline.

One of the showiest of these is the belted kingfisher. Perhaps you've spotted him perched on a dead branch above the water or have heard his rattling call as he passed overhead.

He is little larger than a flicker, but his head, with its shaggy crest and long stout bill, gives him a strange, top-heavy look. His upperparts are bluish-gray and his underparts are white. With most birds the male is more colorful than his mate, but the female kingfisher has a rust-colored band across the lower breast that the male lacks. Both sexes have a blue-gray band across the upper breast.



The kingfisher is an excellent angler, as you'd expect from one who spends all his time fishing. Aside from a few frogs and crawfish he eats little but fish.

Watch him as he scans the glimmering water from his perch. Nothing that moves escapes his notice. At the first glimpse of a flashing fin he rushes to the spot, sometimes hovering in mid-air until the target is right in the sights. Then he folds his wings and drops like a falling arrow. The impact tosses up a fountain of spray, but in a second he emerges, chattering triumphantly, and flies to a nearby limb, his prize clasped in his bill. Should the minnow struggle it is quieted with a few hard whacks against the limb, then swallowed headfirst.

Some fishermen worry about the kingfisher eating all "their" fish, but except in unusual cases his prey consists of chubs, dace, and other non-game shallow water fish.

Don't look for the kingfisher's nest in a tree or bush; you'll be wasting your time. Look instead for a hole in

a steep bank that has been excavated by the bird's bill and feet. Some nesting tunnels are as deep as twelve feet, but most penetrate only half that far. The white eggs are laid in an enlarged chamber at the end of the hole.

Unlike most baby birds, kingfishers do not acquire a coat of down after hatching, but are completely naked until their feathers appear. When small they are fed partially digested fish but long before they are old enough to scuttle to the mouth of the tunnel to meet their returning parents they are given whole fish to gulp down.

By the time they leave the nest they are colored like their mother—each with a rusty band across its breast. Next year, after spending the winter in the South, only the females will wear this colorful band. The males, having reached maturity, will be attired in plain blue-gray and white like their father.

PONDSIDE SLEUTHING

You've probably heard the bullfrog's deep "Jug-o'rum" coming from a nearby pond on a still July evening, but have you ever actually seen him singing? It's quite a sight. By approaching quietly with a flashlight you can usually locate him as he floats lazily on the shallow water near shore. If you have the patience to watch for a while you will see his throat suddenly inflate like a huge, flattened balloon. With this supply of "compressed air" he begins his bass solo, and the ground fairly vibrates with each note.

If you are a camera bug you can easily take a flash photo of his performance. Have a companion hold the flashlight on him while you focus. Remember though, it's illegal to catch frogs with the aid of a light, so be content to watch and listen.

SHORT SHORTS

To straighten a kinked leader draw it through a folded piece of inner tube or other rubber.

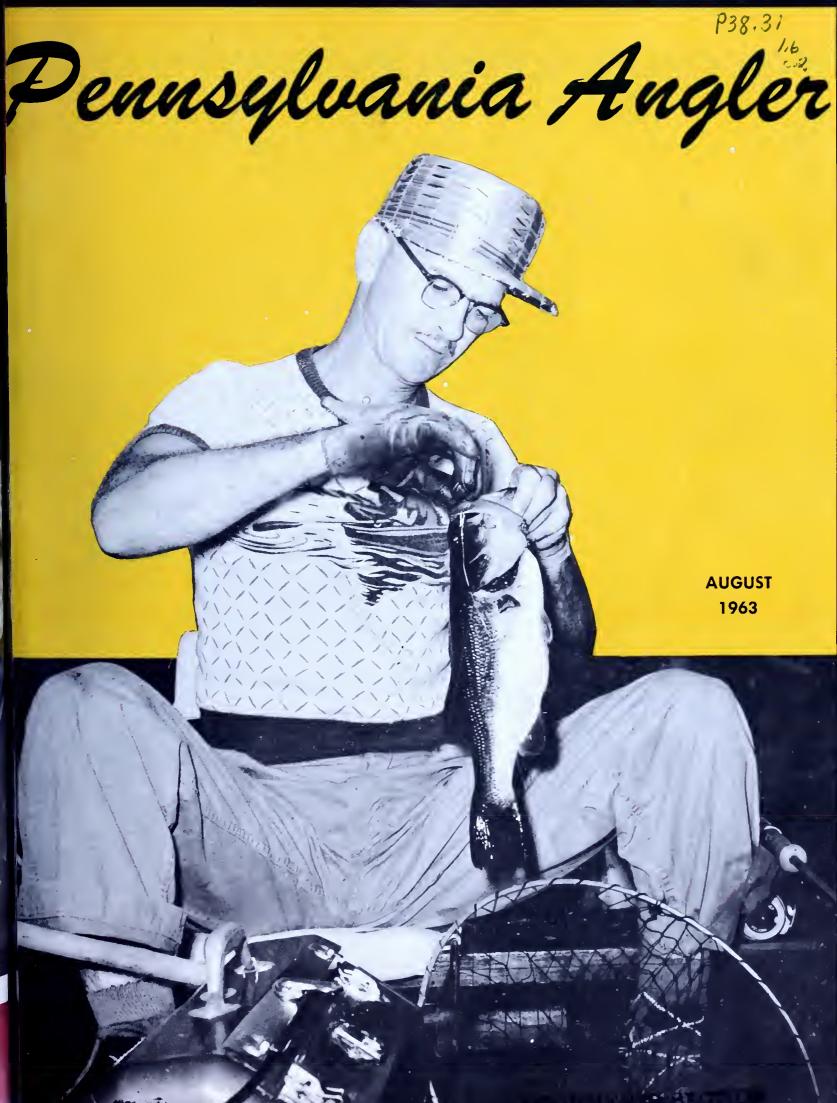
Waterlogged dry flies can be restored by squeezing them in a wad of facial tissue, then dressing.

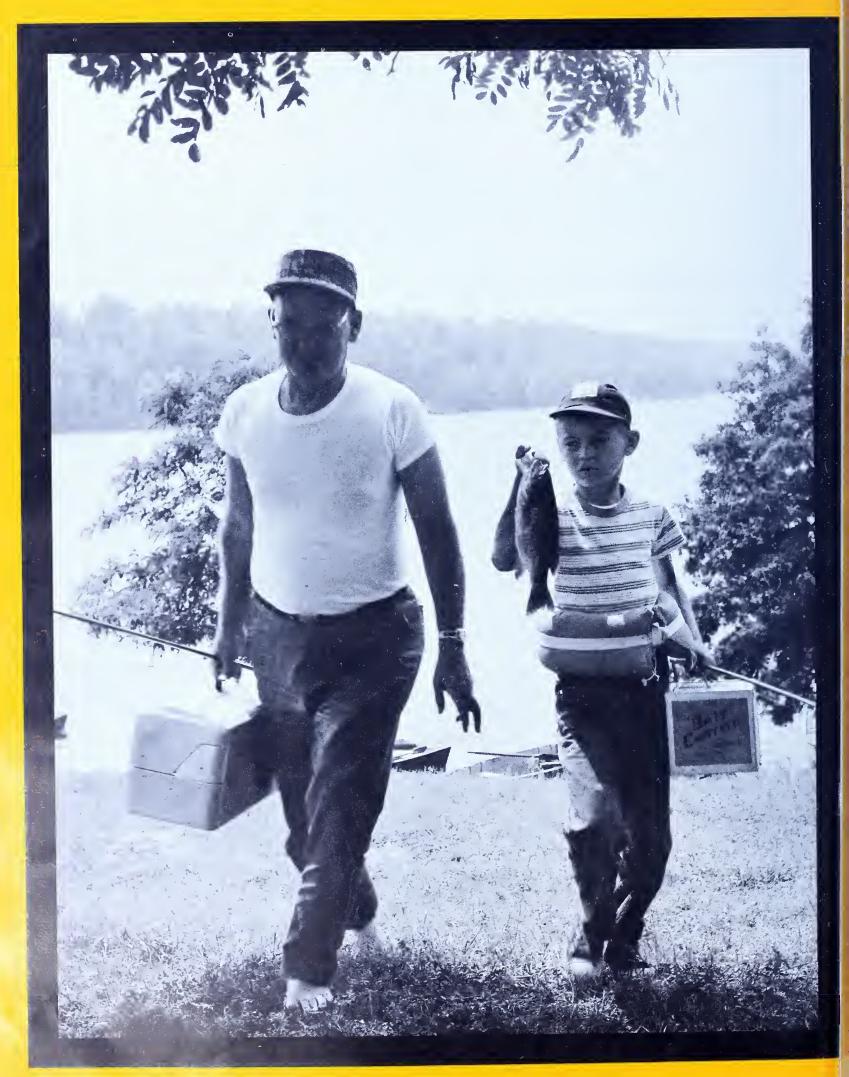
To prevent a clincher sinker from sliding wrap the line or leader once around body of the sinker between the tabs.

To prevent rust damage to hooks open your fly box and dry quickly after each fishing trip.

Hooking Hellgrammites through the tail instead of the collar will enable you to break their hold on streambed rocks.







INSTANT FISHING BUDDY-YOUR SON

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Pennsylvania Angler

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AUGUST, 1963



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GEORGE W. FORREST, Editor

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NOTICE: Subscriptions received and processed after the 10th of each month will begin with the second month following.



PENNSYLVANIA FISH WARDENS have a variety of duties. Here Wardens (left to right) Frank Kulikosky and Anthony Discavage are shown with the Fish Commission's live fish display at one of the many exhibits and fairs throughout the state. The wardens meet the public, answer questions of a helpful nature and distribute the Commission's many publications.

By W. W. BRITTON

Chief Enforcement Officer Pennsylvania Fish Commission

SELECTING AND TRAINING FISH WARDENS

THE Pennsylvania Fish Commission has come a long way in the methods of teaching and training warden candidates in the past ten years. There was a time when the warden candidate was given a pick and shovel at one of our hatcheries to determine if he had what it took to work with blisters on his hands. This method was as antiquated as the horse and buggy is today.

It should be explained that all warden candidates are thoroughly screened before they are accepted for training. Birth certificates must be produced so that candidates may not deceive as to their ages. They are measured and weighed. They must produce their high school diplomas. They must be physically and mentally sound. They must have good reputations in the communities where they reside. A check is made as to their honesty and habits of living.

The written examination is so constructed that men who pass it must have knowledge of wildlife and the out-of-doors. By having such an examination we get men who are fairly well trained in the things they will need to know. This is just that much less they must be taught or learn by trial and error. After passing the written examination each applicant is given an oral examination.

The Oral Board is composed of Fish Commission staff members and Fish Commissioners. Here he is examined for alertness, neatness, boldness, temperament, personality, etc. After passing the oral test his name is placed on our eligibility list from which we draw when there are vacancies. When called for training he is assigned to a regional warden supervisor who teaches him all about our paper work, acquaints him with Fish Commission policies and teaches him concerning his varied duties as a fish warden. The supervisor cautions him against making mistakes others have made, especially as law enforcement is concerned.

After several weeks with the regional warden supervisor, he is placed with an experienced warden for actual field experience. He is an observer until such time as the regional warden supervisor and the regular warden feel he is ready to handle a case. He learns by watching and doing.

Particular attention is given to all trainees relative to handling cases before a Justice of the Peace. Proper preparation of the case before, during and after the hearing is instilled into the candidate at the time he is instructed in Legal Procedure. Trainees are supplied with copies of legal procedure and proper wording in filing an information, or for the purpose of settling a case on a field receipt. As mentioned before, the candidate is given complete instruction in his many varied duties.

His next training is given by the regional fishery man ager. He assists in stream surveys, stocking, census taking and the many other activities of the managers. In early February a school of instruction is conducted at our Ben ner Spring Research Station. A copy of last year's schedule is shown under outline of courses prepared by Gordor Trembley, Chief Aquatic Biologist, Pennsylvania Fish Commission.

The training of our fish wardens never ends. During the winter of 1959, eighty-five per cent of our warden force enrolled, either with the U. S. Coast Guard Auxiliary or the U. S. Power Squadron, for additional training in boat handling and seamanship. Each fall our wardens are assembled at Pleasant Gap for inservice training. Instructors from Penn State University have been secured the past four years. Instructors from other agencies and our own staff make up the complement of teachers. It is at this time that the wardens are brought up to date on Commission policies. The laws are reviewed and discussed. The Deputy Attorney General is in attendance to give guidance on such matters as may be brought before the group. They are brought up to date on the latest technical and scientific matters relating to fish and fish life.

Regional meetings are held at least twice a year in each of our six regional field offices for the purpose of keeping the wardens abreast of Fish Commission matters and by exchanging views on how our work can best be done and the fishing public served. Individual enforcement and related problems are discussed and solutions sought. method of communication has proved most satisfactory and is considered a worthwhile part of our training program.

There is no set time a warden trainee must spend under direct supervision. This all depends on the individual. We have had some in training for six or eight months and it was necessary to drop them. It was evident they did not possess the qualities necessary to become a first rate officer. It has been our practice never to accept inferior personnel when we know it. We had one candidate who lasted one day. We discovered his flaws quickly. Each warden candidate must serve a one-year period as a warden trainee. This gives him incentive to do his best for he knows others have failed. It also affords the Commission a further opportunity to observe his work and evaluate him for permanent status.

Methods of Teaching

Regarding the methods by which a person may be most effectively trained or taught, it is an established fact that all educational institutions regard competent instruction to a small group or individual to be the most desirable.

As an example, the public school strongly favors small elasses in order that a better teaching job can be done. Further, when a student performs poorly in this situation the next step is private tutoring or individual instruction. In fact, educators are well aware of the fact that individual instruction by a competent teacher is by far the best means of training or teaching.

Since the above remarks are undeniably correct it would seem that the training given prospective fish wardens is superior to any training that might be given in a mass teaching situation. This fact is further strengthened when we consider that prospective wardens are not only given instruction by persons already serving satisfactorily and competently as fish wardens, but also they receive the bulk of their training from the Fish Commission's regional warden supervisors who are masters of their profession and fishery managers, to whom the trainces are assigned for assistance in biological work.

Because of the fact that the need for new fish wardens is relatively slight, since only two or three are placed each year, and some years none, the techniques of warden training which we employ are not only more effective but are more economical than the maintenance of a formal school.

Therefore, since we are following the precept that individual instruction is the most effective and at the same time is accomplishing the task of warden training in the most economical manner, it would seem that criticisms of our warden training program are without foundation and may be made by persons unfamiliar with our program.

Advantages of Individual Instruction in Warden Training

1. The warden trainee is given individual and adequate instruction regarding his duties by a person already acknowledged as an expert in his field.

2. Individual training permits a warden trainee to learn

on the job.

- 3. Individual training gives the opportunity for his teacher to become well acquainted with him and thereby provides many more teaching opportunities than could be possible in a mass situation and provides an excellent opportunity for the teacher to evaluate the
- 4. Individual training "in the field" is more effective and realistic than classroom instruction.
- 5. The Fish Commission's individual training program is more economical than classroom instruction.
- 6. Educational experts are practically unanimous in their opinion that private tutoring is the most effective means of teaching since all of the teacher's instruction time is devoted to one student.

Outline of Courses

1. The identification of common fishes of Pennsylvania. Here the students were able to work with certain fish species and actually key them out and learn their identifying eharacters.

2. The limnology of lakes and streams. This was a eonsideration of physical, biological and chemical factors and the forecs in nature which affect fish life.

3. Identification of the aquatic invertebrates which

serve as fish foods.

4. Pollution problems and water chemistry. Here the students became acquainted with the different types of pollutants in Pennsylvania, effects upon fish life and methods for determining the type of pollution.

5. Warm-water fish management. A study of fish populations and the interrelations of forage and carnivorous species. Also considered here were the possible methods of population manipulation to provide better fishing.

6. Natural history of fishes including spawning habits, food, growth, migration, etc. The classic examples of migratory fishes, that is the eel and the salmon, were given as well as life histories of numerous of our game and forage species.

7. Fish diseases. The diseases most commonly seen in the field were discussed with a description of the

symptoms.

8. Fish culture research. A review of the progress made at our Benner Spring Research Station in this field.

9. Pennsylvania's trout stocking program. A complete coverage of how our streams are stocked including all of the various steps in the hatcheries and in the record

As often as possible the men were taken on field trips and demonstrations given on the subjects which were studied.

Instant Fishing Buddy - Your Son

By WALTER SMERCONISH

N MANY households during the fishing season, there are enough tears shed to start a do-it-yourself hatchery. These are young tears, three to thirteen, sobbed as Dad prepares to leave for the stream. "Why can't I come?" flows the little Niagara. "When will you take me?"

That's a good question! When will you take him? When he grows up? How big is up? Fritz Renitsky said he started his boy when he was big enough to hold a rod and smart enough not to tell his mother about the stops at Pete's Place.

There is no universal agreement about the best time to begin the small fry's fishing since so much depends upon interest, temperament, your guidance, etc. Along the banks of the streams they can be seen in assorted sizes, shapes, and ages. There is no minimum age so we aren't surpised to see some who could lose a tug-of-war with a six-inch trout. Some of these tadpoles are good though; some have to wrestle the worm to get him on the hook, but they go home with fish—sometimes more than "Dear Dad,"



BOY AND DAD angling team gets results not only in quality or quantity of the fish caught but it's "sport rather than court."

When I was just a little non-shaver, my Dad took me along on trips for anything from sunfish to croakers. Many pots full of sun fish wound up in the duck pond as a result—but we had fun. Dad was very patient with me, which is as essential as a rod and reel. He didn't even get upset when I fell in on our first trip out. I slipped trying to save a dropped worm from drowning. Well, he had told me that anything that fell in (including me) was in trouble.

Now I have two sons of my own—Wally, who is five seasons old, and Mike, whose only hooks are the ones holding up his three-eornered trousers, is one. We'd take him fishing too, but just as Wally said, "We couldn't get hip boots for him anyway." I started Wally when he was four. I don't mean weekly or anything close to that; just once in a while, when the time was right. I didn't hope to do any more than "expose" him to the wonderful world of nature.

To stimulate a little interest, I took him to the stream during the prc-season weeks to feed bread to the new-arrival trout. "Boy, this is fun!" he'd yell as he threw another slice of wheat. The fish didn't mind; where else eould they get so much for so little effort—and toasted yet! I had a pretty hard time convincing him that putting peanut butter and jelly on the bread wouldn't make them "grow big and strong like their dads."

I followed up the feeding with a trip to the Neshaminy River for sun fish or anything that happened along. We packed a lunch pail complete with thermos and cookies (this was a tremendous stimulus). We didn't need boots since we were staying on the bank (I hoped). Because I own four rods, he asked, "Whieh rod are we taking, Dad?" "The glass one I use for worm fishing," I replied. With a very puzzled look he mumbled, "I didn't know you could fish for worms!" Can you imagine what he would have said about fly fishing? One thing about it, I didn't have to carry anything—my "sidekick" loaded everything. Really big stuff this fishing.

The Neshaminy River runs rather level and is just full of spots for an operation like this. That first day we fished a segment of the river about five feet wide which swirled around a rock forming a deep pool. I rigged the line with a cork (about one and a half inches high) up two feet from the hook. Watching the cork is really a lot of fun to kids and since the hook ean't touch bottom, it can't get hung up on a rock.

Meanwhile, some conversation:

"Dad, do you think the worm will cry when that hook pinches him?"

"No, he doesn't mind."

"Maybe the fish will eat the cork instead of the worm."

"Fish don't like eork. I don't know why."

"Yogi Bear doesn't do it like this. You know that, Dad? You know that?"

"No, I didn't know, but this isn't Jellystone National Park, either."

As luck would have it, the first taker was an eighteeninch carp about as graceful as a rock. I hadn't realized
he was on the line until I was reeling it in to change
position. As soon as I felt him, I handed the straining
rod to my screaming partner who immediately began to
crank—in the carp's favor! Backwards! He gave the rod
back to me. I think he did this so he could jump up and
down easier. They must have heard him back in Doylestown the way he shouted as I lugged "Mr. Splashie" (as
we called him) onto the bank.

Ever see a kid around his first live fish? "Pick him up . . . Does he bite? . . . Put your finger in his mouth . . . Hold him by the tail," all the while dancing around and laughing. After a bit he agreed to touch him—like a hot poker. Very carefully he glided his index finger toward the carp. Just as he was about to make contact, the chunky scavenger breathed, opening up his big gill. Well, my buddy jumped a foot and yelled, "Hey! Look Dad! We broke him! There's a big hole up by his head! I can see inside!" He was so excited he fell over the lunch pail.

Then, during twenty questions on fish breathing, I convinced Wally we had to put Mr. Splashie back in the water because we don't keep that kind of fish. He didn't fully understand that. It seems his main concern was "What will we show Mom when we get home? Will we tell her we put them all back? I know how she looks at you funny and laughs when you don't bring any home and tell her you put them all back." You know, the kid had something there. So, back to fishing we went. This time for some keepers—sunfish.

Once again I flipped the cork and worm into the water; this time I handed the rod to Wally and told him to hang on. Immediately the cork started to dip and sway—this brought shrieks of joy and anticipation from my oldest. He had him hooked and the line was running all over the place. "Reel him in!" I shouted, and the battle was on. Could my thirty-eight pound apprentice land this colorful Moby Dick? He ran first one way then another, then up and then around trying to outwit his opponent—Moby Dick? No, my No. 1 son!

Finally, one fouled reel and two wet feet later, Wally had him on the bank (exhausted, no doubt). He dropped the rod and ran to pick him up by the line. As the sunny flipped and flopped, he started yelling, "Look Dad! He's trying to fly!" After admiring him for a bit, we put him in a big can to take him home. Before long he had company—lots; they were packed (if you sunnies will excuse the analogy) like sardines.

On the way home, we made two stops to put some "flyers" back in the can and one to filler'er up at a gas station—no gas, water for the can. Talk about excitement when we got home! He showed those fish to all his friends and anyone else in his path. When I finally caught up to him, he was impatiently waiting for the tub to fill while helping the fish to enjoy nondescript dives into the tub. He was really thrilled, and I felt good because now he was one step farther toward a life of sport rather than court. He'll go with me again this year, and I hope for many years to come; but no matter how many trips we will make, that first splash will be among our fondest memories.

But how about your son; does he want to go? If so, answer this one—Why don't you take him? It doesn't have to be the first day, week or even the first month. Just some Saturday you have set aside as "His Day." Let him help plan it—the spot, the bait, the lunch, etc.



AUTHOR AND SON, Wally, help to stock trout in the Neshaminy Creek, Bucks County. This is a big interest builder for prospective young anglers.

If he's just a minnow, don't even take a rod along because he'll need your help if any of your catch should "break" or start to "fly." Do take dry clothing and extra boots (tell him it's just in case it rains). All the other equipment is pretty standard with one exception—bring that one thing that is even more important than the rod, reel, or even the lunch—your patience. If you're the type who gets angry or nervous and starts to shout, stay home and save your money; you'll need it for juvenile court. Don't expect him to sneak up on holes, cast like Zorro, or not get a little wet. Anticipate these things and you'll enjoy them rather than get upset. Also, it is extremely important not to keep him out if they aren't hitting. This is the cause for dissatisfaction expressed by many non-anglers today.

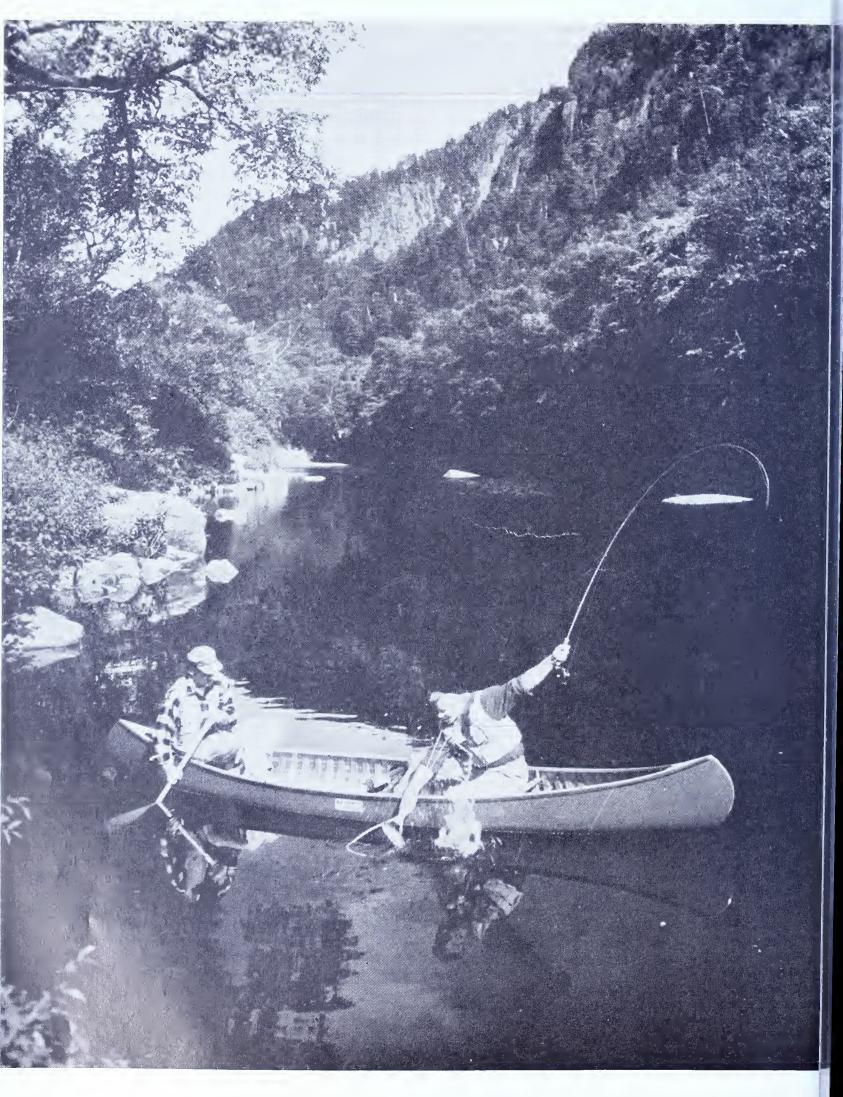
A big idea might be to take along one of his peers; kids always enjoy things more when there is another little "deduction" or two with them. In fishing it gives them a tiny spirit of competition.

One of the best possibilities would be to take the whole family on a picnic and let them all see you in action . . . on second thought . . .

Either way, family or junior, when you get home that night you'll feel like a million; your son will see you as a real man; your wife will smile to see how well you get along; and you may have found a new fishing buddy. But, most important, you'll know they all love you just a little bit more.

So do it now-drop this magazine (Easy, Mr. Editor, I only mean temporarily) and yell in to that cluster around the T.V. set and say these magic words—"Who wants to go fishing tomorrow?"





Canoes

By WAYNE HEYMAN

NO OTHER watercraft can match the canoe when it comes to the perfect all-around boat. For maneuverability, ease of handling, and plain adaptiveness, it has become a legend in the field of boating. The canoe can be paddled, poled, fitted out with power or placed under sail. And with the exception of the kyyak, it's still the lightest craft to portage overland from stream to lake on your back.

Many sportsmen consider the canoe as something less than frail. If this were so, it is hardly doubtful if the design could have survived more than six hundred years and still be as popular as it is today. The real facts are, that for size, the canoe is considered one of the most rugged crafts afloat. Due to its surprising strength, and many other desirable features, it is one of the few boats chosen safe enough to "shoot" the rapids.

Inexperience and poor handling is perhaps the main reason why many sportsmen have shyed away from owning a canoe. Yet if correctly loaded and handled with confidence, the canoe is one of our safest crafts.

The first thing a new canoe owner discovers is, if the water's deep enough to float a leaf, it's usually deep enough to skim across. This opens up all types of promising opportunities to sportsmen who normally would be canceled out with even a light, power-driven skiff. With a double ender, you can explore shallow rivers and streams for new and remote fishing grounds. And since a canoe is so light, even when equipped with a 3-hp engine, it doesn't require any special type mooring. When you have reached a likely spot, just lift your feather-weight canoe out of the water and park it.

The sizes and shapes of canoes are so varied that it's possible to tailor-fit them to the demands of almost every sportsmen. One of the larger manufacturers constructs models from 11' and 50 pounds up to the huge War canoe with final weight and length your choice. For beginners, the popular sponson type canoe is best. This model gets its name "Sponson" from the special air chambers that extend from stem to stern. The sponsons not only add to the natural buoyancy of the canoe, but also makes it safe to handle in some of the meanest, wave-swept lakes. Sponsons also increase the canoe's capacity for extra luggage and passengers.

Before choosing a double ender, first decide on it's use. If you intend to cruise with heavy loads on large rivers, lakes or even salt water, then you might be better off with a canoe with sides that bulge out several inches in a convex curve known as the "tumble home." The extra fullness at the bow and stern enables the tumble home type double ender to ride large waves with ease instead of cutting through them like the sharp ended canoe. It also paddles well and can be fitted-out with either sail or motor.

A round bottom canoe is for speed where speed is desired, but it will not be nearly as buoyant and stable as a flat bottom design. The favorite, all-around choice of many veteran canoe owners is the Guide Special. Its broad lines provide steadiness and plenty of carrying capacity while its flat bottom allows you to glide like a feather over shallows. The ends of a Guide Special are low to lessen wind resistance—a feature experienced users regard as essential. Another point of favor is the Guides' extreme lightness on portage. Most models average 85 pounds minus paddles and extras. But don't let its lightweight lull you in underestimating its strength. Almost any well constructed Guide Special, if given reasonable care, will remain serviceable after twenty or more years of use.

Although canoes are not basically designed for high-speed operation, a simple outboard-motor side bracket will convert your double ender into a dual-purpose rig. Engines best suited for canoe outboard use are the light-weight models from 2½ to 7½ hp. This will give you speeds from 6 to 16 miles per hour. If you plan to do much outboarding, then it might be wise to follow the advice of the Outboard Boating Club of America (OBC) and keep the speed of your double ender within the safe operating range of 8 m.p.h.

While any double ender can be fitted-out with power, the Square Stern canoe is specifically designed for outboard-motor application. It is also a dual-purpose rig and can be paddled, rowed, poled and when equipped with 2½ to 10-hp engine, will reach speeds from 6 to 22 m.p.h. This lightweight craft, although priced slightly higher than a double-end canoe, is a big favorite with hunting and fishing sportsmen. It is easily transportable and its featherweight makes it ideal for car-top carrying. A well constructed Square Stern will cost from \$310 to \$360. But if you intend to do much cruising, then its stability and extreme lightness is well worth the price.

As with any water craft, when owning a canoc, there are certain rules to follow if you expect full cruising enjoyment and ease of handling. First of all, never overload your double ender. Too much weight or faulty loading is the quickest way to upset. Under normal conditions the bow should ride slightly higher than the stern, but when heading into a heavy breeze, with two men paddling, more weight at the bow will enable the sternman to keep on an even course by straight paddling.

If you are alone in a canoe, never load it so that the bow rides high. Even on a calm day the chances for an upset are excellent, since only the narrowing stern of the canoe is in the water, and the craft will roll over very easily. Even with a well trimmed canoe, avoid sitting or kneeling in the stern. Move amidships where the bottom is widest and rest against one of the thwarts. You will find paddling easier there since the wind will not spin you around as it does when sitting at one end.

When moving about in a canoe, always grab both gunwales for balance and step along the very center line. Embark and disembark in the same manner. Avoid coasting the bow of your canoe on the shore when landing. Otherwise you will force the boat to balance on a knife edge keel width which can roll you right out. Your weight also can, with no support beneath the canoe's middle, break the craft's back. On sandy beaches, slow your speed when reaching shore and, when close in, lean forward. This will ground the canoe in a safe and solid position.

If possible, always load the canoe while it is floating. This will avoid the unnecessary risk of breaking ribs or planking when transporting it to water's edge. While on the subject of carrying, here's the easiest method of portaging a canoe: If paddles are used, lay the handles on the middle thwarts and the blades on the bow thwart. Adjust them so that the tops of the blades are just forward of the bow thwart. Lash them securely in this position, just wide enough to permit the head to go between, and you will have a strong, well balanced makeshift yoke. A sweater folded over the shoulders makes the load ride more easily and keeps the paddle shafts from cutting in.

The proper way to beach a canoe is to rest it upside down on its gunwales. In fact, to get the longest life possible and also to prevent leakage, canoes should be kept in this position whenever they are not in use. A canoe, if given reasonable care and stored properly, will need few repairs.



The broad tree of the Guide Special give it steadiness and generous carrying capacity. Its lat bottom lets it travel easily over shallow places, which makes it a favorite with hunting and fishing sportsmen.

The "Otca" is wide, deep and roomy. Its sides are convex, producing a handsome tumble-home.



An outboard-motor side bracket will convert any canoe into a slow-speed powered troller. Although the engine is mounted off-center, it will not seriously affect the canoe's balance.



Kids love a canoe. It is buoyant and safe and doesn't require mansized muscles when paddling.



The Way of a Stream

AN ANGLER who happens to wade into the main current of a swiftly flowing stream doesn't need to be told that moving water has force. The current that threatens to sweep him off his feet one day may scarcely have enough energy to move a floating leaf the next, and the day after it may surge downstream, taking large rocks with it. But change and movement are all part of a stream.

A stream channel is continuously shaped and reshaped by the flow of water in it. Rock fragments are moved from one place to another. And they are subject to further reshuffling if the velocity of the stream increases, like after a heavy rain. This redistribution of material the erosion here, the deposition there—is all part of the process by which a stream tries to reach an equilibrium; that is, so it can flow along with a minimum of obstructions to curb its journey.

A stream transports materials by pushing, rolling, or skipping them along its bed. Small particles, such as clay, soil, and tiny sand grains, are frequently carried in suspension by the stream. When this happens the water becomes muddy. As the current slows down the particles begin to settle out. A large stream may move tons of sediments this way. Some things, like certain minerals and salts, may even be dissolved and carried along in solution.

The faster a current flows the more scouring it can do; its power greatly increases as its velocity increases. A current of about one foot per second can move sand particles up to about ½2 of an inch in diameter; a current twice as fast can move particles up to twice that size, or about ¾ of an inch. If the velocity increases to about 5 feet per second rocks up to ½ inches in size may be moved along the stream bed; and during a torrent a stream may move large boulders.

You might be surprised to learn how much water flows down a stream. A stream that is 3 feet deep, 10 feet wide at the bottom and 15 feet wide at the surface, and moving at 60 feet per minute (one foot per second) has a flow of about 14,400 gallons per minute. (You can estimate the amount of water flowing in a stream by using the following formula: flow in gallons per minute = width of stream at surface + width of stream bed × average depth × velocity in feet per minutes × 3.2.)

With so much water flowing, you might suspect that a polluted stream will purify itself in a certain distance. Well, it can. Fast streams are better at recovering from pollution than sluggish ones. Oddly enough, some pollution can actually help a stream by encouraging the growth of certain useful aquatic life. But uncontrolled pollution frequently tips the scales of nature too far in the wrong direction.

Despite its seemingly smooth and easy flow, water is subject to a "dragging" effect as it flows through the stream channel. Because of this, water that flows along the sides and bottom of a stream moves at a slower rate than water flowing at the surface. So, unless a stream is very shallow, the velocity of the surface current is not necessarily typical of the entire stream section. It can, however be used as a guide: the average current of a stream is about 85% of the surface current. For example, if the surface current is 2 feet per second then the average velocity of the stream is about 1.7 feet per second. There are, of course, always notable exceptions.

SMALL POND FISHING

... I like pond fishing ...!

There isn't much writing space dedicated to this type of fishing, mainly because at the mention of ponds, the thought arises of stunted bass, small bluegills, and wobbling turtles. This type of fishing almost constitutes blasphemy, particularly where a die-hard bass fisherman is concerned.

There is no fixed way to fish for pond bass but I find them no different than bass in the warm waters of Georgia, or the cold spring-like waters of Michigan. The pond bass will mutilate your favorite surface lure in a furious smash, or pursue your deep running spinner in a relentless chase.

In practically all ponds, with few exceptions, there are deep ends, shoals, and shallows. In the early hours of morning, even before the retreating worm feels the piercing beak of a hungry robin, you will find bass still lurking in the deep water. There, the deep running spinner or an under water type plug with a twisting, darting action, will come into its own.

Assuming there is no reaction to these two lures, I switch to a small silver spoon called the "reflecto." The common practice is to use a small piece of pork-rind at the base of the hook. I found on the small type spoon, the pork-rind not only has the tendency to pull the spoon down, but also cuts down wobbling action to a minimum. In place of "rind" I use a small piece of rubber balloon, usually white or bright yellow. This not only gives the spoon its full action, but the selection of colors is greater. Try it . . .!

If the early morning hours have drifted into the heat of mid-day give your arm and mind a rest for you will then find bass won't accept a barbecued omen served on a platter of suggestion. If your early morning venture was a flop, this is no ill reflection on pond fishing. Remember, bass there are no different than in any other part of the world, which means, you must outsmart them.

Returning at dusk, you will find the pond and its surroundings have been painted a dull brown by the retreating sun. Bass will now begin to move into the shallows in search of food. They will prey on their own kind, small bluegills, or that rare treat, a swimming mouse. At this time, encouraged by fleeing, terrified small fishes, the bass will hit hard at a surface plug. Sink it to them . . .!

Most experienced pond fishermen will walk the shore line, making casts hither and yon! If you haven't the know-how I wouldn't advise this type of pond fishing because the slightest vibration from shore will send bass thumping for deep water. Cast to the fish, it will pay off!

Pond fishing is now fast coming on; in the future I think it is going to be a big thing.

-CLYDE H. FELLENBAUM, SR.

Such is the way of a stream. Given sufficient time, those processes just mentioned can wear away a mountain or carve a gap through one. Streams do their work slowly—so slowly, in fact, that we seldom realize their effect on the landscape. They flowed across the land long before the coming of man; but they were *only* streams until man learned to use them for recreation and energy.



Boating

Robert G. Miller

N LINE with a previously mentioned plan to keep this column as personal as possible, reporting on the activities of the various organized boating groups in Pennsylvania, the Tri-County Boat Club became the first to be tapped on the shoulder with the conventional "who, what, where, when, why and how" questions and it supplied plenty of answers.

Along with information concerning the establishment and progress made by this organization, the answers also indicated it is no easy task to keep an organized boat club on an even keel. Too many people like boating and only a few are around when there's work to be done.

Frank A. Krautheim, present commodore, along with other officers of the organization, was quite cooperative in providing the answers, plus a cruise of the area, even though that particular day was the date of one of the club's special events—open house and chicken barbecue—which provided him with a hundred and one other things to do.

Located on the east side of the Susquehanna River, between Middletown and Falmouth, the Tri-County boatmen operate one of the finest marinas in the east in view of the fact that today, unless you've had an early start, it's tough to find a suitable location for boat launching facilities particularly an area adequate for parking hundreds of cars and boat trailers.

The organization was chartered about seven years ago with approximately 50 members and Herman George, Harrisburg R1, at the helm. At that time the membership came from three counties: York, Dauphin and Cumberland. Since then it has grown by leaps and bounds to about 300 persons many of them from two additional counties, Lancaster and Lebanon.

However, to reach its present status and to be able to offer the facilities it now provides, it has been a long, constant uphill fight with George, as Frank mentioned, doing all the work.

A few summers ago the club took over maintenance of the former Stein's Landing and has developed it to the extent that parking facilities have been tripled, there are docking facilities for approximately 100 boats not including those tied up at individual docks along the shoreline, picnic tables, gasoline and oil, and a special service providing bottled gas to the island cottagers.

Naturally these services weren't provided over night. When the club took over the landing one of the first requirements was more shore line frontage. This resulted in a long drawn out court procedure, paper work and a maze of red tape, before the necessary lease was drawn up with the cooperation of the Pennsylvania Railroad.

As a result the club now leases about a mile of shore line extending from the vicinity of the PRR—Rt. 441 crossing south to near the Geyer Church intersection.

A large portion of the area has been graded for parking, and a beach type launching ramp improved, with the remaining area rough graded for future use. However, the club is currently operating with an annual expense of nearly \$20,000 and can only do a little at a time.



AT THE HELM of his outdoor cruiser is Frank A. Krautheim, Tri-County Boat Club commodore.

As the commodore pointed out, he works with a group of tight, money-wise, directors who nine times out of ten veto any spending suggestion. They prefer to decrease the current indebtedness first and spend later.

How does a boat club these days raise enough money to cover operational expenses? By club dues, charging a fee for launching and parking, special benefits, such as barbecues to get the people together, and any other fund raising projects which come to mind. In fact, he said, you've got to take advantage of every possibility to raise a dollar today.

For example, club membership is based on the size of the craft owned by the member: under 17 feet the dues are \$35, while anything 17 feet and over will cost the owner \$55 a year. To "park and dip" is \$2 a day, or 50 cents a day to park the car. These fees are on a par with those charged by other marinas in this section of the state.

Receipts from the small refreshment stand assist in building up the club treasury as do the funds derived from the yearly special events. The Tri-Town Boat Club schedules three chicken barbecues a year with the next slated for July 28 featuring an extra special attraction, a concert by the Liberty Band.

During a cruise of the area Krautheim pointed out some fine boating waters even though that area is faced with the same problem as elsewhere, a fluctuation of the water level.

When the river stage at Harrisburg is five feet the Tri-County boaters can feel free to cruise on up to Harrisburg, a distance of about ten miles from the launching point or 12 to 13 miles above the York Haven dam, the southernmost cruising boundary.

When the river is low, rock ledges just north of the club area reduce boating to some extent but with the river about a mile and a half wide at this point there is still plenty of water for cruising, water skiing and fishing without getting into anyone's way.

A group of islands in the area, directly across and south of the club's launching area, produce a rather picturesque background for the boating family. Several of these were farmed at one time, in fact the soil is still being tilled on one, while years ago dance pavilions were the centers of attraction on a Saturday night. One of these pavilions still remains having been turned into a summer cottage by the owner.

One of Krautheim's major concerns is obtaining enough volunteer help especially each spring and fall when it's time to refloat the docks or remove them from the water for winter storage. He has found, and this is generally the rule, there's always the same persons around when it's time for work. However, the commodore and his wife are trying to work this out by issuing a newsletter keeping the entire membership abreast of such work days, or meeting dates, and of any special events coming up.

When the club took over the area it also acquired in the neighborhood of 20 or 22 old coal flats and two steamboats which were used by Ed Downey when he dredged coal from the river bottom.



BARBECUE TIME at the Tri-County Club grounds, off Route 441 near Middletown, Pa.



OLD COAL FLATS anchored end to end to provide water docking areas. Club has four rows of barges far docking about 100 boats.

One of the steamers, no longer usable, can be found along shore at the south-end of the club grounds while the flats, huge heavy and beamy affairs weighing several tons and measuring 50 feet long by 10 to 12 feet wide, are anchored end to end to provide in the water docking areas. The club has four rows of such barges making it possible to dock, or tie up, about 100 boats during the season.

Because of rock ledges and the depth of the water in the area just off shore, the club found it's not feasible to provide off shore mooring areas with buoys for each boat.

However, as a safety practice, the club does set out lighted buoys marking the location of such underwater hazards. At the same time each member is cautioned against reckless boating in the area and to warn others, usually non-members, when they are observed operating in a reckless manner.

In addition to Krautheim, other currents officers are: Russell Leonard, Middletown, vice commodore; Amos Hedges, Middletown, treasurer; Clair Sowash, Middletown, secretary; the Rev. Edward J. Deller, pastor of the Cathedral Parish, Harrisburg, an ardent water skiier, club chaplain; and these directors: Earl Wolf, Tony Divatori, Paul Hess, Lewis Librandi, Russ Berger, Robert Ginder, Bob Veigle, Bill Gerfin and Roy Cummings.

Boating Questions

QUESTION:

Instead of buying new spark plugs for my outboard each year, I have the old ones checked, cleaned and regapped. Is this as good as using new spark plugs?

ANSWER:

First of all, there's na rule that says spark plugs should be changed ance a year. Same plugs may last several years. With some outboards, particularly the larger madels, it may be necessary to change plugs a few times each seasan. It's a good idea to have them checked whenever you suspect they are bad. If they check aut all right, there's no reason why they shouldn't be reused.

QUESTION:

Does fast gear shifting hurt an outboard motor?

ANSWER

Not at all. In fact, outboards should be shifted with a snap. Trying to ease them into gear causes the shifting cogs to wear faster.

OUESTION:

I've seen some outboard motors expel a steady stream of water when they are idling. Mine doesn't. Does this indicate a problem in the cooling system?

ANSWER:

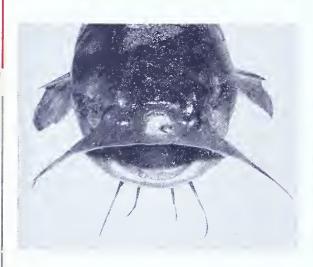
If your motor is equipped with a thermastat, it will not expel a steady stream of water through the exhaust relief outlet. Instead, the water is recirculated through the coaling system. If it daesn't have a thermostat, it would be a good idea to have it checked.

All pipes, cigars, cigarettes, stoves and open flames must be extinguished when gasoline tanks are being filled.

Men who ache all over for tidiness and compactness in their lives often find relief for their pain in the cabin of a 30-foot sailboat at anchor in a sheltered cove. Here the sprawling panophy of "The Home" is compressed in orderly miniature and liquid delirium suspended between the bottom of the sea and the top of the sky, ready to move on in the morning by the miracle of canvas and the witchcraft of rope. It is small wonder that men hold boats in the secret place of their mind, almost from the eradle to the grave.

INSTANT CATFISH CLEANING

By DON SHINER



Not very handsome, but this is a portrait of a most popular fellow in Pennsylvania—the common cat-fish or bullhead.



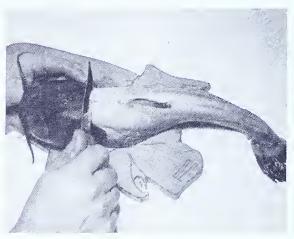
Here's an easy way to clean the whiskered cat for the skillet. First, thrust your thumb into its mouth, and straddle the fin-spines with your fingers. Then ring the head with a light cut through the skin.



Use a pair of pliers to peel the skin in one σ motion.



Skin peels off completely in this one motion.



Now cut through the backbone just in the rear of the head.



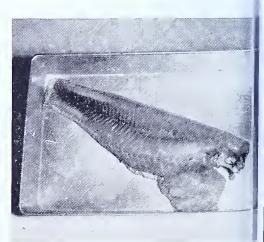
Grasp head in one hand, body in other and



Continue to grip the head in one hand, while sliding the thumb into the body cavity. Then pull. Head and entrails will pull free intact.



Remains is a solid chunk of flesh with very little wasted meat.



Cut off fins and tail, rinse in water and t fish is ready for the pan. You're looking of the best eating fish found in Pennsylvania fi water lakes and streams.

OUTDOOR COOKING WITH FOIL

A DELIGHTFUL bonus to a day spent fishing, is a dinner cooked on shore! All the flavor and taste of the freshly caught bass or catfish is preserved when an angler prepares the catch in a sizzling hot pan over an open shoreline fire. The treat is unmatched, as all those who enjoy outdoor cookery will attest.

Time was when anglers were required to carry pots and pans in their creels for outdoor cookery. Not so today. Many sportsmen simply carry a few folded sheets of aluminum foil. When a fire is burning down to hot, glowing coals the paper thin sheets of foil are unfolded and smoothed of wrinkles. The foil is then carefully draped over a suitable tree stump or shore rock to form a panshaped container. Cook pot, fry pan and coffee urn are all fashioned in this manner.

Into this newly formed pan goes the fresh bass or catfish together with a dash of butter and salt, or bacon and potatoes. While the meal browns in the open container, the wood smoke of fire, coupled with the aroma of cooking fish will whet anyone's appetite!

Sheets of foil, measuring about 15 to 18 inches square, are folded compactly to a size 3 x 4 inches for carrying in a shirt pocket. A half dozen pieces of foil can be folded compactly to less than one-quarter thickness of a cigarette pack. The foil is easily straightened when the outdoor meal is being prepared. Two thicknesses are generally used.

Best part of the meal is the omission of the most distasteful chore of cleaning pans. The disposable aluminum foil pan can also be used to douse water on the fire, then placed in litter bag and taken home to be discarded.

For a tempting outdoor dish, try this. . . .

FISHERMAN'S DELIGHT

Clean and wash one lb. of bass or catfish, and slice one potato. Slice onions. Place slices of bacon on aluminum foil pan, and place cleaned fish on top of bacon. Place potato slices on fish, add salt to your taste. Place sliced onions on top potatoes. Top with second piece of bacon. Cook about 30 minutes or longer, depending on amount of hot coals. Turn to prevent burning. Cook larger bass proportionately longer.



For outdoor cookery, use oluminum foil.



Carefully form two sheets of foil tree stump or shoreline rock into a shaped contoiner.



Lift foil from forming die, and fold edges.



The result is a nicely formed cook pot or fry pon.



The aluminum foil pot is ideal for fishgome or leafy greens cookery.

High Jinks With Hellgrammites

UNE sportsman I know was divorced from his first wife because he used hellgrammites for bait. Most others had no such luck, however. They merely caught plenty of fish.

Although hellgrammites are found almost anywhere there is flowing water, they are not used too extensively. They rate very near the top as bait for smallmouths, brown trout, and channel catfish. But still you will meet few anglers who habitually use them.

Perhaps the doggone things are too ugly to have around—even in a bait container. Maybe you just don't know how to catch them. Or possible you've had trouble using them after you caught them. Let's discuss it in that order.

A hellgrammite is the larval, or aquatic, stage of the Dobson fly. It looks like a centipede with a wicked pair of pincers. You can either handle them with respect from the very beginning or you can find out, first hand, that the pincers really are wicked. With a reasonable amount of caution, you can keep all your fingers intact, avoid a bloody stump.

When an adult Dobson female is ready to lay eggs, she selects a precarious spot underneath a bridge, a rock ledge, or overhanging tree branch. The egg clusters are whitish, about the size of a nickel, and may contain as many as 3,000 eggs each. Sometimes the clusters are numerous enough to give the place a paintsplattered look.

When the hellgrammite hatches, it falls into the water and begins the aquatic phase of its life. For two years and eleven months, more or less, it frequents the undersides of rocks and logs. It grows fat, slowly, on a diet of fellow, but smaller, residents of the rocky riffles. If it can survive its two-plus-years span without being reduced to so many calories by a smallmouth or rock bass, it eventually emerges into a graceful and colorful Dobson fly. Thereafter its use as bait is all but lost—so we'll return to the uglier, but more useful larval form.

Hellgrammites are easy to obtain. Alone it's a fairly tedious matter, but with one helper you can collect an ample supply of bait without too much wear and tear on your patience. You should have a legal-sized minnow seine with a fairly small mesh.

Station your helper just downstream from several large rocks in a riffle. Lift three of four of the rocks quickly, one after the other—and then have your partner raise the net. You should have several hellgrammites. If you didn't, it may be that you lifted the rocks too slowly. The quarry needs only a brief second to grab a hold on the underside of the rock and to prevent being washed into the net.

Don't try too many rocks at once and do not disturb

the bottom unnecessarily. Raise the net frequently or the Dobsons will crawl to the bottom of the net and escape beneath it.

Hellgrammites are the hardiest of live baits. You can keep them for a long time with little attention. It it's a good day and you're a skillful angler, you may catch several fish on one individual.

Any of those belt-type bait boxes will do the trick of carrying them while you fish. Just line the bottom with leaves or moss and sprinkle with water occasionally. Those flat tobacco cans are suitable, too, since they fit so well into shirt or pants pockets. If you're a pipe smoker, though, better stick to the belt-type models—or use a different brand box for the bait. You mistakenly may load up with "hoeiacks."

I always use a fairly long leader when using hellgrammites. Depending on the speed of the current and type of water, I may use a small split shot or two. The hook should be a short-shanked six or eight, hooked under the front of the collar and coming out the rear. Never, under any circumstances, bury the hook in the hellgrammite. It kills them—and there goes your effectiveness.

Just as important as hooking is removal of the tail hooks. If you neglect to do it, you might as well go back to other baits. The hellgrammite will grab the first rock or obstacle he contacts, doggedly crawl under it, and you're snagged. At best you'll wind up with a bare hook and a frayed leader.

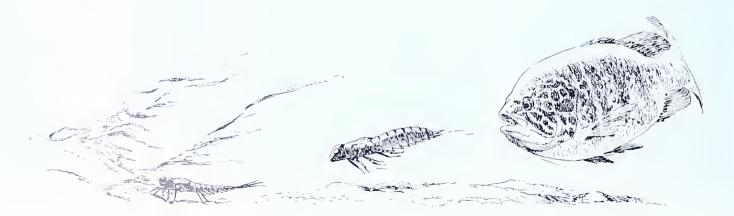
Fortunately there is a simple and quick way to amputate the hooks. Here's how. Hold the critter by the head, between your thumb and forefinger, and with his body away from you. Do it another way and you'll learn first-hand how those pincers work. Draw the body across the blade of a small seissors or nail clipper (which you should carry for the purpose) until you reach the tail hooks. As soon as it grabs the blade—snip—you're in business.

Be very careful to clip off only the hooks, or claws. Do not cut into flesh, or again you'll have dead or badly injured bait.

After all that effort—the seining, snipping, etc.—you deserve some action. Stick to tails or riffles, to start, and you'll have it. Make your cast so that the bait will drift naturally into the pool or pocket below the riffle.

Be careful to start the drift far enough upstream so that it will be thumping bottom when it reaches the pay-off area.

When working glides and other smooth water sections of streams, omit the sinker altogether. Fish as lazily as you can, allowing the hellgrammite to settle and drift as it will. Four days out of five, you'll promote more action with a natural drift. But if business is too slow on the fifth day, give it a twitch now and then. I've seen it work on many a trip.



Hellgrammites—or devil-divers, helldivers, hoejacks, conniption bugs, grampuses, or snake doctors—are generally prescribed for bass fishermen. But the truth is that other species are even more susceptible. Take the channel cat, for instance.

At dusk, some evening, stake a claim near the tail of a riffle. Spend the short period before dark getting acquainted with the water. After that, start drifting your grampus into the likely spots you had located previously in the waning light. You'll be taking potluck, sure enough, but if it's a typical night when channel cats come onto the riffle to forage, you'll keep mighty busy.

Many an old residenter has succumbed to a hellgrammite artfully drifted past his hang-out. One brownie I know watched a fortune in bivisibles, fanwings, and streamers wash past his nose over a period of four years. He revealed not the slightest display of interest. Grasshoppers and worms were no more appealing. But one warm June night Charlie McCellan turned the trick. He didn't exactly discourage the notion publicly that this bragging size four-pounder was taken on an artificial. It took a bit of firewater to uncover the hellgrammite in the story.

Hellgrammites are easy to keep. All you need is a damp, cool, and dark place. The lower tiers of the family refrigerator meet all these specifications. But a word to the wise on refrigerators. Keep the bait container covered, especially if your wife has prepared salads for a bridge party and has stored these, too, in the refrigerator.

Imagine the looks on the faces of her guests as they discover a couple of Dobsons nestled cozily in the tossed salad. That's how that fellow we mentioned, back in the beginning, swung his divorce.

Now there's nothing but beer and salami in the refrigerator. And helldivers.

-ERWIN A. BAUER

Fisherman's Diseases

Dry-fly-itis, a dread malady of the mind. This disease is the ultimate, there is no known cure. Fortunately few persons become afflicted. Only those persons who hold a high regard for their casting skill, can be infected.

Victims have a tendency toward up-stream movement, and may get twitchy around the lakes. External parasites often appear attached to head goar

often appear attached to head gear.

Approach suspects cautiously and quietly, don't strike until you see dimple. Temporary relief can be provided for patient's benefit, by flushing streams with muddy water. Prescribe limited numbers of Ginger Quill, Gray Hackle or Red Variant. Patients may need segragation in, HEH, HDH or GBG wards.

Wet-fly-octomitus, is a specific infection that may result in several secondary diseases such as bucktail fever, streamer-sickness and nymph fly-itis. Infection may result from an injury, such as a blow from a rod handle. Victims can be recognized by their spasmodic movements while fishing. Casting skill is not a symptom.

Patients may froth at the mouth at the mention of test words, "bait fishing." Victims may show a noticeable tightening of lines, observe the retrieve closely, look for jerky motions. Patients are often difficult to handle, they insist on being placed in "fly fishing only wards." This treatment is not necessary, for disease is not contagious. Some may require back-lash therapy. Suggest monofilament; it is inexpensive.

Red and White Sac-disease, is relatively common and may appear one or two weeks prior to first fishing trip. Victims usually suffer severe pain, caused by the enlargement of tackle box. They are inclined to mutter such phrases as dare devil, silver nixie, flat fish or lazy ike. Those who are afflicted are dazzled by glittering spoons, spinners and plugs; they often suffer from hardware blindness.

For treatment, swing shiny spoon to hypnotize patient, treat by hypnotic suggestion. Sample: avoid sporting goods stores, do not look through tackle catalogs, stay away from hardware counters. Some patients may require minor surgery for removal of treble hooks. Prescribe barbless hooks.

Still Fishing-ick, is a common affliction known from prehistoric times. It is a highly contagious infection, often resulting from repeated attacks of spring fever. Victims show schizophrenic tendency, being nice people around the office, but inhuman on fishing trips. They spend hours trying to drown worms, minnows and grasshoppers. At times they may be seen lugging jars of cheese balls, marshmallows, pork rind or salmon eggs everywhere they travel. In addition they are often known to throw rocks at water skiers or pleasure boaters.

Patients may suffer delusions if they are unable to catch two or three limits on each trip. May rave about "streams and lakes, fished out, need more stocking." It is difficult to treat these deliriums. Try soft soap, or prescribe new diversions such as bowling, pool or horseback riding.

-TOM LYNCH in Colorado Outdoors

Instant Nature Information On Tap in Vest-Pocket Books

NSTANT information about 486 nature subjects is now available in the form of six colorful books, each smaller than an average adult's hand.

The matched series has been published by Ottenheimer Publishers, Inc., world's largest producer of vest-pocket reference books. The individual volumes present full-color photographs and comprehensive data on 85 birds, 80 mammals, 81 rocks and minerals, 80 trees, 82 wild flowers and 78 insects. They are available singly or in sets.

The unique size, format and content of the series have been developed to allow unusually fast reference in the field as well as leisurely study in the home, according to the publisher. Innovations include reproductions from actual color photographs, the first to be made available in nature guides within the size and price range of the new series.

The six books, each 2% x 5½ inches in size, are printed on fine paper and durably bound in leatherette with full-color dust packets. They are margin indexed for speedy location of subject.

Each book begins with a broad, factual introduction to its subject. It then devotes a full page to each of approximately 80 species or types—including the color photograph and concise, categorized information. The volumes range from 94 to 96 pages in length.

The Vest Pocket Nature Guides are available at book, stationery and drug stores and selected news stands throughout the nation or directly from Ottenheimer Publishers, Inc., 4805 Nelson Avenue, Baltimore 15, Maryland. Retail price is \$1 per volume.

AUGUST—1963

Oil Drum Smoke House

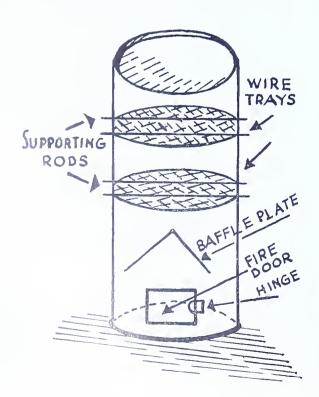
By HERMAN WIEDENHEFT

This 55-gallon oil drum smoker will smoke fish or meat quickly and easily, what's more, it's portable. The oil drum has a metal door about $15'' \times 11''$, bolted on the drum with 1 or 2 hinges over a slightly smaller hole in the drum. This is the fire door.



Next, the drum has the top cut out with a cold chisel. The top is then bent in an inverted V shape to form the baffle plate. This plate is suspended on a ¼" rod above the fire and sawdust pan and keeps the drippings from falling into the charcoal fire. The fire is made of charcoal or briquets in 2 one gallon round cans with sufficient holes punched at intervals to make a good charcoal burner.

Smoke is supplied by filling a small pan (about $14" \times 9" \times 2"$) with hickory or any hardwood sawdust and placing it on the two cans of charcoal inside the bottom of the drum under the baffle plate. Usually one pan of sawdust will supply plenty of smoke for one smoking. One pan of sawdust will smoke for about 1 to $1\frac{1}{2}$ hours. The charcoal is left in to cook the fish for about 5 to 6 hours or until they are done, dry or moist according to your taste.



Two trays of ½" mesh wire are cut to fit inside the drum and placed 9" and 18" from the top of the drum. Each tray rests on 3¼" rods evenly spaced through the drum.

The top is made of any wood and fits fairly snug on the drum to prevent as much smoke loss as possible. However, a small amount of smoke must escape. A hole is drilled in the center of the wood lid to receive a thermometer. The temperature in the drum should range between 150° to 200°.

This smoker will easily handle about 20 to 30 pounds of fish.



To prepare the fish, clean well, cutting off the head and removing the entrails. Wash well in clean water. Soak for about 12 hours, more or less, to suit your taste, in a salt brine. The brine should float a fresh egg. After soaking, remove from the brine and rinse very well with water. Place the fish in the smoker, start your fire under the sawdust, close the lid, and sit back and wait for a real treat to tickle your palate.

For the ultimate in smoked fish, try smoking some bull-heads. They are tops!

To Catch More Smallmouths

F YOU want to catch more smallmouth bass, and just about everyone does, try fishing for them at night. Like many warm water fish the smallmouth does most of his roaming and feeding in the shallows, during the hours of darkness. This is especially true after the spring spawning season.

If you are fishing a lake for smallmouth bass at night, cast toward the outer edges of bullrushes and weedbeds or across rock gravel bars and reefs, two to six feet deep. Concentrate on the slow retrieve. But if that doesn't work try a faster retrieve. Stop occasionally to listen for surface feeding smallmouths.

On smallmouth streams concentrate you fishing around the riffles, flowing into the upper ends of pools.

The night fisherman should study the water—in daylight, and learn where the shallow or weedy feeding might be. When you go out in a boat at night take a waterproof flashlight and wear a light-weight water skiing safety belt.

-DICK KOTIS

THE SUCCULENT CRUSTACEAN

HERE were dark shadows where the driftwood jammed against the deep cutbank. Twice my light streamer probed the depths in a darting swing, and twice the brown followed it into the shallows before returning to his lair. His proportions were generous and I coveted him. As I searched my fly hook for a more seductive lure, the clinking of stone broke the stillness of the morning. I glanced up rather resentfully suspecting another angler, but instead a portly raccoon worked the shallows for his breakfast. He was so intent that he came almost to my feet before he sensed my presence. Suddenly he grasped a crayfish and stood up. His front paws dropped over his wet belly, a look of surprise wrinkled his nose. He was so funny that I laughed aloud. He scrambled up the bank, threw a disgusted look over his shoulder, then retreated with more haste than dignity. At my feet lay the dying crayfish. I picked it up, examined it carelessly then tossed it toward the driftwood. scarcely dropped below the surface when there was a swirl and the crayfish was gone.

The marsh with its weed-choked channel, its strip of water littered with beaver cut wood could be scarcely dignified with the name pond. Anglers passed it by on their way to the river with barely a second glance. It abounded with life. Frogs loved its mossy shallows, sunfish nested here and there and the bullheads herded their clouds of restless infants among the decaying branches. We long ago discovered that it was the home of silvery, heavy-girthed pickerel. My Scotch friend called them "dour" fish because we had difficulty finding them in a receptive mood. When the pond steamed under a warm summer rain, we sometimes tempted them with pork chunks. The answer to the success with these selective pickerel came one day when an unusually distended stomach of a good specimen aroused my curiosity. An autopsy revealed a dozen crayfish of the largest size. I am convinced that we could have cleared the pond of pickerel with crayfish for bait.

Walleyes, perch, trout and even bullheads take crayfish when they are available. Bass, particularly the river smallmouth, are partial to this staple. It is a common experience to net a bass and find in the bottom of the boat several specimens the bass has disgorged. The live bait angler would be mildly shocked to find these are generally hard shells and not the usually sought soft shelled specimens.

It is an amusing experience to sit where you can observe a small bay or pool that harbors pan fish. A few crayfish, pulled into small pieces will concentrate most of the aquatic population in a short time. They rush about in a perfect frenzy of feeding as long as the food lasts. On more than one occasion I have seen a large predatory fish dash into the milling throng and gather his dinner with ease.

When French Hubert introduced crayfish tails and red sauce as a delicacy, I rebelled until he persuaded me to try just one. "Delicacy" fails to express the succulent goodness of this gourmet's delight. It is one of the sources of protein readily available in most of the wilderness to a lost man. They can be captured by hand in sufficient quantities to sustain life. They are tasty when roasted over a bed of coals and I suspect, under extreme disaster conditions, would not be too distasteful in a raw state.



They are abundant in the spring brooks where the water rarely freezes even in extremes of temperature.

Crayfish hold an important place in the aquatic food chain and its survival as a species is of prime importance to the angler. There are a number of characteristics that not only expedite its survival as a species but tend to increase the number of individuals. It can live in waters that have a higher pollution factor than most fish will tolerate. It can survive periods of drouth that will seriously reduce other aquatic life. It accomplishes this by digging burrows that follow the receding water level.

Crayfish are most active at night, feeding from sundown until dawn. They are sensitive to touch over the entire body but seem to crave contact with sides and back against something solid. For these reasons scientists classify them as negatively phototrophic and positively thigmotactic. Thus their hiding places are burrows under rocks or in burrows dug either in the stream bed or banks. They back into these refuges with only their antennae and occasionally their large claws extended. Should one of the appendages be lost, either by contact with an enemy or through accident, it has the power to regenerate the missing limb. This power of regeneration is more rapid in young specimens than in adults.

Crayfish usually mate in the autumn but the eggs are not laid until early spring, usually April. The eggs are fastened to the swimerettes, located under the tail, with a sort of natural glue and are aerated by being moved back and forth in the water. The dark colored eggs remind one of clusters of tiny grapes. The eggs hatch in one to two months and the young cling for a while to their egg shells. They stay with the mother for some time then strike out on their own.

When the hard outer shell becomes too tight, it is shed and a new one is formed. During the hardening process the crustacean seems to sense its defenselessness and hides. It is in this stage they are preferred for bait. All creatures that prey on them seek the soft succulent tidbit that has lost its power to move rapidly.

Our hard shelled miniature lobster belongs to the decapods or ten legged creatures. It moves in two ways, walking and swimming. It can walk slowly in any direction, usually forward, but also sidewise, obliquely and backward. When it is frightened, it can move backward in swift darts. The heavy muscles of the tail give it a suddenness of movement that helps it to escape.

When using crayfish as bait, secure a number of rubber bands of the smallest size. Slip one or two over the tail and adjust them between the tail plates. A hook can be held without injuring the bait. It will remain active and consequently be more attractive.



NEW INSTRUMENTS PUT FAST FINGER ON POLLUTANTS

SCIENTISTS in the State Health Department's sanitary engineering division laboratory in Harrisburg have gained a new "finger" to help them point to sources of contaminants polluting streams.

Walter A. Lyon, director of the department's Division of Sanitary Engineering, announced that a gas chromatograph, able to separate mixed organic compounds in a sample into their simpler components, is now installed in the laboratory.

The chromatograph, the latest model available, can for example separate a minute amount of gasoline into such things as benzene, octane and toluene. This could enable technicians to say what compound is being discharged from a suspected source of stream pollution.

The chromatograph works by fractionating, or "breaking down," a sample. First, a sample is injected into a separating tube which carries the sample to an ionization chamber. Then the chromatograph draws a time chart of the sample. The chart shows the concentration and presence of a certain compound after a specific amount of time has passed. Each compound is recorded at a given time after the "inject" time. Its curves and peaks look like a miniature mountain range.

This "picture" can then be matched with similar "pictures" of known compounds for identification. It takes from 30 minutes to one hour to complete this process of running a sample through the chromatograph. As many as 50 compounds in one sample can be traced in this time.

Mr. Lyon reported that organic substances are analyzed from sampling locations throughout the state where problems are suspected as being caused by organic chemicals.

A companion instrument, an infrared spectrophotometer,

was previously installed in the laboratory.

After a sample had been separated and tentatively identified in the gas chromatograph, the separated fractions can be put through the spectrophotometer. The latter instrument will then confirm, or make positive, the identification.

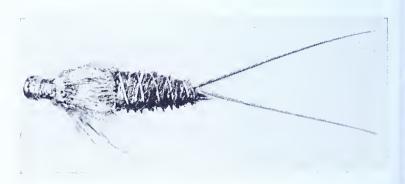
"Today's stream sleuthing, depending on high-powered, sophisticated instruments, is a far cry from the day when pollution investigators depended on their eyes and noses to help them identify pollutants," Mr. Lyon commented.

BASIC NYMPHS

FOUR years ago George Aiken and I fished the Penitentiary stretch of Spring Creek during one of the most prodigious Sulphur hatehes I have ever seen. The little duns furnished some interesting dry fly-fishing during the afternoon but by evening the fall of spinners was so heavy that it was frustrating trying to follow one's own fly amid the thousands of naturals. Since a few duns were still hatching I decided to try a nymph along a deep limestone ledge near the tail of a long flat. A No. 14 Pheasant Quill replaced the dry fly on my leader and within a half dozen casts it was taken by a torpedo-shaped female brown of four pounds with the coppery complexion and fiery fins which marked her a stream-born resident. Too beautiful to kill, she was quickly weighed, photographed in the waning light, and released with fond fanny-pat.

Mid-August of the same season found us in the glasssmooth flats of Big Spring below Newville, fishing for the beautiful and often difficult brookies for which this stream is noted. Although these fish generally offer wonderful midge dry fly-fishing, they were not rising on the particular day in question and it was decided to employ a No. 14 Pheasant Quill, unweighted, on a twelve-foot leader. Drifting the nymph on a long line between the weed beds, fourteen fine brook trout were caught and released that afternoon, including one speetaeularly colored beauty of nearly two pounds. Not a record catch but a very satisfying one, made under tough conditions.

Many fishermen think of nymphs as purely early season flies and it is true that they are effective in the high, clear water of April and early May. However, they are an important adjunct to the dry fly up to the final days of the season and can sometimes prove to be the ace-in-hole when the streams are low and elear.



Pheasant Quill Nymph

Hook-Size 14 or 16 regular shank Tails—Two dark brown wing quill fibers Ribbing—Fine gold wire Abdomen-Purplish brown fibers from eoek pheasant tail Wing Case—Gray goose quill section Thorax—Dark brown seal fur Legs-Grouse-tied as throat

The Pheasant Quill was originally tied to imitate the nymph of the little dark-winged Caenis Mayflies but it has since become a favorite all around nymph for mid to late season use. -CHAUNCY K. LIVELY

An average father is one who wears out a pair of shoes while the rest of the family wears out a set of tires.

You can be sure summer is here when your chair gets up when you do.

ARE FISH REALLY SMART?

THERE isn't a reader of angling yarns who hasn't at some time or other been intrigued by the description of an angler battling his finny prey and the apparent intelligence exhibited by the latter. To be sure, a heavy fish on light tackle can be a worthy adversary of the most skilled angler. However, with plenty of room in which to handle the fish the latter has but a slim chance of avoiding either the frying pan or the trophy plaque. A hooked fish instinctively seeks the shelter of nearby logs, brush, rocks and even the shadow cast by a boat, but you can rest assured that any such move is not a calculated one.

In the first place the chances are that the fisherman induced his quarry into taking something not even remotely resembling its natural food. And most expert fishermen pride themselves on their ability to entice fish with a grotesque creation more nearly resembling a miniature interplanetary rocket than a minnow, craw, frog, worm or other natural bait. In other words, a fish, any fish, is just plain stupid to fall for most of the artificial lures used by the average fisherman. On the other hand, who has ever gotten a fish's eye view of an artificial presentation? Yes, we have read such descriptions and probably have been guilty of writing one or two of them ourselves. but most was conjecture tinctured with imagination. Sure, skin divers may be in a piscine position to observe such phenomena, but it must be admitted that it is not through the eyes of the fish. An underwater photograph depicts the scene as the human eye sees it, and that, you will agree, shows little if any distortion. If that is the way a fish sees things, then you must admit to piscinal doltishness for taking some of the highly fantastic imitations with which it is confronted.

No hooked fish ever intentionally twisted the line around a submerged snag. I even have doubts if a fish can see a submerged line or even if he does he certainly does not associate it with his plight. Yes, I know what you are thinking, viz., "Why, then, does a trout fisherman use an all but invisible leader and/or tippet?" No experienced trout angler has any illusions about a fine or even ultrafine leader. They make possible the natural presentation of that most skillfully crafted of piscatorial phonies, the dry fly. On the other hand, does a trout, even a wary old veteran, associate the nearly invisible elongated surface depression made by a fine leader with the fly to which it is rising? If it did wouldn't that indicate that the fish is capable of associated reasoning? And if they could do the latter, to catch one would require major strategy. But the convolutions of the fairly well developed brain point to a short memory.

Perhaps some of you dedicated bass fishermen can explain the following. After catching all the bass needed for a good meal we did a bit of experimenting with interesting results. After removing the hook from the line we tied the latter to a securely harnessed dead frog. A dozen or more bass ranging from one to perhaps three pounds, still cruised languidly but expectantly in the clear six-foot depth below the boat. Without observing any more than regular precautions we lowered the weighted frog into their midst. A two-pounder nailed it at once and as we gently pulled upwards on the hand-operated line the bass came along without the slightest resistance.

At the surface we paused and the fish mouthed its prey while three or four of his more curious companions came up to see what was taking place. At least that's about all one could assume. When we resumed pulling, the bass took a fresh hold on the frog and permitted itself to be pulled out of the water almost up to the gunwales of the boat and within inches of my hand. All this, mind you, while three of us looked on in astonishment. The bass finally let go and plopped back into the water. Did he flee? Nope, he waited and when the frog was once again lowered he grabbed it a second time. After repeating the performance three times we figured he had earned his dinner without any strings attached to it.

Now I can hear the clamor of the trout fishermen. Sure, trout, especially brookies, can be repeatedly pulled high out of the water hanging tenaciously to the bait until they finally run afoul of the hook. And I've had trout fishermen tell me that they have repeatedly hooked the same trout after disengaging it from the hook and returning it to the water. One of the most effective trout lures I ever used was a cellophane cigar wrapper twisted around the hook in such a way as to present two leglike appendages, something like a V. Not to be outdone my companion caught its buddy with the cigar band.

One time four of us were drifting up to a dock after we had cut the motor. While well within a score feet of an angler rinsing his hands after cleaning a mess of fish, he suddenly gave a startled yell and jerked both members out of the water. One of them was bleeding profusely. Subsequent examination disclosed two badly skinned fingers while a third was scored to the bone. The attacker? A northern pike, a fish with dental equipment matched only by the musky. Nor can it be said that the latter has any keener discernment. There's an inveterate angler living in our town who enticed a musky with his wiggling toes while he was cooling his dogs in the Allegheny. Fortunately the fish missed, but only by inches. Probably took the toes for nestling birds which occasionally fall out of nests built on an overhanging limb. We long ago learned to keep our feet and hands out of the water when fishing.

Are fish induced to strike by hunger, ignorance, orneriness or a combination of all three and by other impulses still unknown to us? There isn't a bass fisherman who hasn't seen a hooked fish regurgitate a whole gulletful of half digested minnows or craws when it jumped in its attempt to throw the hook. You must admit that they are not very bright in discerning artificial lures. Form your own conclusions.

—N. R. CASILLO



AUGUST—1963

The FROM THE STREAMS

While Warden Abplanalp and I were pulling the last nets from Conneaut Lake, as we neared the net set from the south shore of Wolf Island, we noticed an unusual commotion in the lifting crib of the net. We caught the lifting buoy and pulled the net onto the boat. In the crib was a pair of loons, both birds very lively, just jumping into the twine in an effort to escape. Warden Abplanalp opened the crib and got the birds out unharmed. As the first loon was released he went about half way across the lake on the surface of the water just flapping his wings and making noises. The second bird watched the first for an instant, then dove from the boat deck and chose to stay underwater out of sight until well away from any danger.

-District Warden RAYMOND HOOVER (Crawford).

District Warden STEPHEN A. SHABBICK (Wyoming) was informed of the following incident by a local Sunday School teacher who teaches a class of pre-school age children. She began to tell them the story of Peter the fisherman and had hardly begun the story when five-year-old Ronnie Lane piped up and asked . . . "Was Peter fishing or stocking?"

While on routine patrol of Black Moshannon Lake in May, I found a musky that had been dead probably a day or so that measured 44 inches in length and weighing in the vicinity of 25 or 30 pounds. Upon further investigation and discussion with Fish Commission biologist Jack Miller, it appears the fish died from being egg-bound. Looks like the Commission's muskellunge program is doing very well.

-District Warden PAUL ANTOLOSKY (Centre)

A deputy game protector told me of two fishermen camping in a trailer at Chapman Dam. One morning at 5 a.m. they were awakened by wild turkeys trotting all around their trailer. They thought this was a wonderful sight to behold on a camping trip. Things took on a less roisier hue when they went to get their bait out of a box kept under the trailer. The turkeys had upset the box and gobbled down every one of their worms.

-District Warden KENNETH G. COREY (Warren)

District Warden CLIFTON E. IMAN (Butler and Beaver) said Paul Lutz of Zelienople, Pa., had his hands full for an hour when he hooked and landed a 40-pound carp while fishing the Connoquenessing Creek. The fish was 36 inches long.

Paul Finken, Easton, Pa., had some odd-ball fishing on the Bushkill Creek near Easton recently. While late evening fly fishing, on a backcast, he felt a bit of drag on the line but proceeded to lay the line out on the water. Just as the fly hit the water he felt a real tug on the line, set the hook and picked up a BAT! The creature must have followed the fly on the backcast . . . missed it, followed through and grabbed it as it hit the water. It's fishing of a sort if you like it.

-District Warden MILES D. WITT (Northampton & Bucks)



GRANDCHILDREN of District Warden Claude Baughman, Blair County, love to help him stock those big trout.

Bow fishing for carp is becoming more popular with an unusual experience happening to Ken Brown of Huntingdon, Pa. On a recent fishing trip to the Raystown Dam, Brown spotted a nice carp. When he shot he found he had scored a bullseye not only on the one aimed at but the arrow had passed through this fish and hit a second carp. He had some difficulty landing them!

-Southcentral Regional Warden Supervisor HAROLD CORBIN



LUNKER CATFISH, 30 inches long, was caught by Raymond Gruel, Lancaster while fishing from a boat a half mile below Safe Harbor Dam. The little girl is Miss Darlene Young, Mr. Gruel's grand-daughter.—Photo Vernon L. Browne, Lancaster New Era.

Maybe hard work won't kill a person, but then, I never heard of anyone who RESTED to death either.

Young Anglers Wet Lines in Lackawanna Derby

SOMEWHERE around 500 youngsters, boys and girls from 5 to 16, wet lines in competition at the first annual Children's Fishing Derby at Rainey's Pond, on the grounds of Lackawanna County Tuberculosis Hospital on May 25 last. Scores of prizes were offered by regional merchants. Many mothers and fathers of the contestants were there to root home the hard fishing, line dunking young people.

Sponsoring organizations included: Lackawanna County Federation of Sportmen's Clubs, Gas Hollow Hunt Club, Scranton National Rifle and Pistol Club, Holy Name Society of St. David's Church, Laurel Hill Beagel Club, M. H. Sportsmen, Hyde Park Rod & Gun Club and the Rod and Gun Club of Scranton Council 280, Knights of Columbus. The Pennsylvania Fish Commission and the Pennsylvania Game Commission cooperated in the initial event. Gene Coleman was general chairman assisted by Robert Edmondson and John Boylan, co-chairmen.



OFFICIALS on the spot included, (left to right) H. Clair Fleeger, Regional Fish Warden Supervisor; Walter Lazusky, District Warden for Lackawanna County; Jim Varner, Outdoor Writer; Gerard J. Adams, member Pennsylvania Fish Commission; Warren W. Singer, Assistant to the Executive Director, Pennsylvania Fish Commission; Gene Coleman, general chairman of the event and Roy Trexler, Northeast Division Supervisor, Pennsylvania Game Commission.

New Officers for Wissahickon Watershed

Thomas Dolan, IV, was elected president of the Wissahickon Valley Watershed Association at the Third Annual Dinner Meeting of the group at the Philadelphia Cricket Club recently. Other officers elected were: Robert McLean, vice-president; Philip H. Ward, III, secretary and James M. Stewart, treasurer.

• • • •

The first recorded insect death was written in hicroglyphics on the tomb of an Egyptian king. It tells how the pharoah sailed to Britain, was stung by a "hornet" as he stepped ashore and died almost instantly. That was 4,700 years ago.



SHOULDER-TO-SHOULDER competition for the prizes was fierce at the Rainey Pond piscatorial derby, rods and lines intermingled like spaghetti.



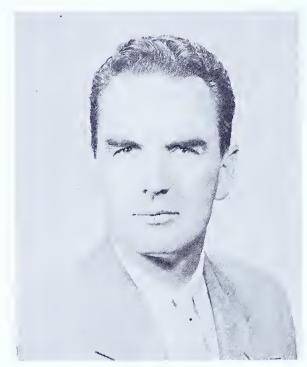
STANDING ROOM ONLY at this section of the pond and you can see how dads and moms backed up their choices with cheers and advice. Everyone had a swell time at this first annual angling-fest.

As any conservationist can tell you . . . buying a load of good topsoil can be an educational experience . . . that while some things may be dirt cheap, dirt isn't one of them.

There is probably no better way to loaf . . . without attracting unfavorable attention and criticism . . . than to go fishing.

AUGUST—1963

OUTDOOR WRITERS OF AMERICA ELECT



ROGER LATHAM

Dr. Roger Latham, popular outdoor editor of the *Pitts-burgh Press*, was elected president of the Outdoor Writers Association of America at its convention at Erie. Seth Meyers, outdoor editor of the *Sharon Herald*, was reelected secretary.

Latham has been with the *Press* since 1957. Prior to that he was Chief of the Division of Research for the Pennsylvania Game Commission. In addition to his many important writings in the general outdoor field, Latham has become well known for his outstanding work, "The Complete Book of the Wild Turkey." This book was the result of Latham's extensive work in Pennsylvania to revive the virtually extinct wild turkey as a major game bird of Pennsylvania and is fast gaining in population and popularity in neighboring states.

Dr. Latham is also active as president of the Pennsylvania Outdoor Writers Association.

Shark! Shark!

As the story goes, Joseph Hyson of Philadelphia, Pa., was walking along a canal which flows into the Dclaware River in South Philadelphia when he spied a very large fish in the canal. Hyson hurried home, brought his .22 caliber rifle with him and shot the fish. It took several shots to put the monster out of business then he took a large net to recover it. The fish, on close-up examination, had large shark-like teeth, was 51 inches long and weighed about 14 pounds. District Fish Warden Walter Burkhart went to Hyson's home asking to see the fish which turned out to be a Sand Shark. Hyson's father stated there was another shark in the canal about the same size. According to outdoor writer Joe Pancoast this is the first report of sand sharks seen there even though the area is in tidewater of the Delaware River.



Dear Editor:

I subscribe to the Pennsylvania Angler, and am very much interested in the column "You Asked About It" by W. W. Britton. I would like to submit a question which I think is of great interest to a number of people in Wayne County.

My property line runs across quite a large private lake (in Wayne County, Pennsylvania), thus the lake is owned partly by myself and partly by a second party. A number of lakefront lots had been sold out of my property by the original owner giving the lot owners the same lake privileges as I have, but no lake ownership. The question now arises, having access to my portion of the lake, can the lot owners and myself also cross over the property line onto the other portion of the lake (owned by the second party) for boating and fishing—provided we do not touch the lake bed belonging to the other lake owner? It has been said that if you have access to get onto the lake, there are no boundary restrictions as long as you do not anchor the boat or fish off the bottom of the lake bed.

Yours very truly, John V. Colligan, Richmond Hill, N. Y.

ANSWER (From W. W. Britton, Chief Enforcement Officer):

If the owner of that portion of the lake you would like to fish does not permit fishing, boating or trespassing you cannot legally do so. If the land beneath the water is privately owned, the owner has full jurisdiction and may regulate boating, fishing, and swimming as he may desire.

Dear Sir:

I have not received my latest July issue of the Pennsylvania Angler so I am enclosing 20 cents to send me another copy. I enjoy reading the magazine very much especially since I'm stationed outside my home state. I'm proud of the money spent and effort put forward by the Pennsylvania Fish Commission to improve Pennsylvania's fishing and I am always willing to tell people I meet about the wonderful state of Pennsylvania.

A3c William Fiedler, Jr.,

Stead Air Force Base, Nevada.

Dear Mr. Fiedler:

Enclosed is a copy of the July ANGLER along with your 20 cents returned. We certainly appreciate your feelings concerning Pennsylvania and the PENNSYLVANIA ANGLER, and we regret very much that the July issue was late in reaching you. The delay in the delivery of the ANGLER was due to the fact our printing contract was changed as of the July issue from Gettysburg to Philadelphia. Details encountered in this transfer, both in printing and in mailing, resulted in the delay. However, we hope future issues will now be on schedule.

Russell S. Orr—Chief,
Conservation-Education Division.

WHO HAS THE TONI?

Man . . . this really sounds fishy but it isn't. Someone recently hijacked a batch of 28,000 Swedish-made "Toni" lures enroute from Chicago to Dowagiae, Michigan. The lure manufacturer reported the theft to the FBI and the FBI is naturally asking . . . "Who Has the Toni?" If some shady character slides up and offers to sell you a "hot" lure at cut rate prices . . . don't bite—you may get hooked by the G-Men.



Big Turtle Bagged by Bowman Pulls Him Into Drink

ARRY Schoenenberger, Spring Valley, Pa., bagged a 45-pound snapping turtle with bow and arrow but needed help to land the reptile that jerked him into the Lehigh River Canal. Schoenenberger shot the turtle while hunting along the canal and when the turtle tried to escape in the water his buddies grabbed both him and the turtle . . . landing both!

Tasty Treat—Turtle Meat

HIS is what the mock turtle sang in Lewis Carroll's Alice in Wonderland. But sizzling turtle meat served fresh off the fire isn't a figment of the imagination such as Alice's dream about mock turtle soup. And just to prove it, here are some ways to fix the armored, ancient reptile.

Although most turtles go into soup, they can also be roasted, broiled or stewed. They can be made into soups (snapper or soft-shelled), soup a la creole, chowder, stew, creamed curry of turtle, steaks, sauce poivrade, sauteed, simmered and many other methods.

A snapper or soft-shell dresses from one- to two-thirds its weight. There are six portions of good, edible meat—the four legs and surrounding muscles and the tail and neck. Also, there are two tenderloins under the back between the ribs and shell that are especially appealing to the taste buds.

For turtle soup, try this method: Cook just long enough so the meat leaves the bones. Overcooking results in stringy flesh. A favorite is snapper soup made like old-fashioned beef soup with an assortment of vegetables and turtle meat cut into small pieces.

Or, for soft-shelled turtles, make soup stock without vegetables and add an egg. Treat the meat the same as for snappers and add a slice of bacon and onion or add noodles to this type of soup.

Cross a bumble bee with a doorbell and you have a humdinger.

Worry pulls tomorrow's cloud over today's sunshine.

Enthusiasm is energy that boils over and runs down the side of the pot.

TURTLE SOUP

Three pounds of turtle meat, cut small and parboil 10 minutes. Water can be used as stock. Fry the meat in four tablespoons fat—ham or bacon drippings are best.

- 2 onions minced
- 4 quarts stock and water, add to the flour mixture
- 2 bay leaves
- 2 sprigs parsley
- 6 cloves
- 2 blades mace (or ½ teaspoon mace)
- 4 tablespoons flour, browned in fat, add 1 cup canned tomatoes, 1 tablespoon salt and ¼ clove, garlic minced fine
- 1 lump of sugar
- 2 tablespoons lemon juice

Bring to a boil and add turtle meat. Cook three hours, strain if desired. Garnish with sliced hard-cooked eggs and slices of lemon, cut thin and minced. Sherry jelly may be added for flavor.

Fried turtle is also favored by many. In this case, clean the meat, dip it in egg and bread crumbs and fry like you would chicken. You could also dip the meat in flour, brown under a hot fire and cover. Reduce heat and add ½ cup of water, cook slowly until tender.

Curry of turtle is a delicacy you'll long remember. With about a pound of meat, brown in fat with a large onion. Put into a kettle with a medium-sized potato, one carrot, the onion, a small piece of parsley, ½ teaspoon of pepper, one teaspoon of salt and ½ teaspoon of curry powder. Add the browned turtle meat and let it simmer until tender. Serve in molds of hollowed out cups of boiled rice.

Here is a turtle stew recipe which appeared in Ashbrook and Saters book "Cooking Wild Game."

- 2 pounds of turtle meat
- 1 onion
- 1 tablespoon butter or shortening
- 1 tablespoon flour
- 1 bay leaf
- 1 clove of garlic
- 1 sprig of thyme
- 1 cup of water
- 1 wineglass sherry or madeira wine

Cut the meat about an inch in size. Chop an onion and put all into a saucepan with a tablespoon of shortening to brown. As it begins to brown, add one tablespoon of flour, 1 bay leaf, 1 clove of garlic and a sprig of thyme, then add a wineglass of sherry or madeira wine and a cup of water; cook for one-half hour. —CAROL BUCKMANN.





FISHING MAPS

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You Asked About It

By W. W. BRITTON

Chief Enforcement Officer, Pennsylvania Fish Commission

The following questions were asked through our mail bag correspondence. If you have a specific question or problem relating to fish laws and regulations, send them by card or letter to Editor, Pennsylvania Angler, Pennsylvania Fish Commission, Harrisburg, Pa.

OUESTION:

If I trade my one cylinder outboard motor in on a new one which has two cylinders, how much time do I have to get my license transferred?

ANSWER:

You cannot transfer license plates from a one cylinder motor to a two cylinder motor. You should send the old license plates immediately to the Department of Revenue, Bureau of Miscellaneous Licenses, Harrisburg, Pa. Notify them you have secured another motor of a higher classification. Specify the motor number, name of motor, number of cylinders and an additional fee of \$1.00. You will then receive a new set of plates and new registration card. If you had purchased another motor of the same classification you would have ten days to make the transfer and you could then use the original license tags.

QUESTION:

Does a fish warden have to have a fishing license to fish?

ANSWER

Yes, if he is fishing for fish for his own consumption. If he is fishing for the Fish Commission he would not be required to have a fishing license. There are times when Fish Commission employees catch fish with hook and line in over-populated ponds and lakes for stocking other areas. In such cases, agents of the Commission would not need fishing licenses.

QUESTION:

Is a fish warden required by law to show his badge or other identification if he is not in uniform when approaching a fisherman?

ANSWER:

There is nothing in the law requiring this, but all fish wardens have been instructed to identify themselves with their badge or card when approaching an individual with whom they are not personally acquainted. It is not only a matter of courtesy, but good enforcement procedure. The public however is protected under the Statute Laws from imposters. Anyone who impersonates an officer is liable to a fine of up to \$500.00 or a year in jail or both.

QUESTION:

Recently I was arrested for operating a motorboat without a 1963 motorboat license. I acknowledged my guilt and wanted to settle the fine with the fish warden, the same as a friend of mine had done for catching too many trout in one day. The warden told me he couldn't settle motorboat cases on a field receipt. Was he telling me the truth?

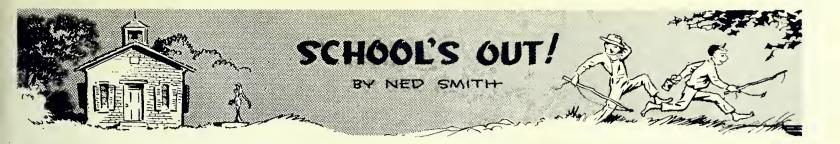
ANSWER:

Yes. He was telling the truth. There are no provisions in the Motorboat Laws permitting a fish warden to settle motorboat cases in this manner. The Motorboat Laws are not a part of the Pennsylvania Fish Laws.

MOVING?

NOTIFY US BOTH OLD AND NEW ADDRESSES

Pennsylvania Fish Commission



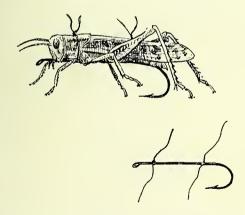
A Monthly Feature For Young Anglers

GRASSHOPPERS—SUMMERTIME BAIT

WHEN it comes to live bait it's hard to beat grasshoppers. Nearly all fish like them—bluegills, sunfish, perch, crappies, trout, bass, rock bass, and others.

To catch the hoppers first locate a weedy place where they are plentiful. Return *early* in the morning. You will find that the hoppers, still groggy from the previous night's sleep, can be picked right off the weeds as easily as you'd pick a huckleberry from a bush. Or you can do the same after dark with the aid of a flashlight.

There are several ways to keep them from escaping. One is to put them in a pop bottle as you catch them. Close the bottle with a wooden stopper that has a slice cut from each side to allow air to enter. The hoppers are easily "poured" from the bottle one at a time as needed. I know one fellow who places a discarded ladies' nylon stocking on the bottom of his bait can or box. The spurs on the grasshoppers' legs become entangled in the mesh and prevent the lively insects from leaping out. Then too, tackle stores sell little bait cages from which the hoppers can be removed one at a time.



Grasshoppers can be fished on the surface of the water or submerged, whichever you prefer. To float the smaller ones use light wire hooks, the kind used in tying trout flies.

Most anglers merely hook these insects through the middle of the body. Those who insist upon healthy, lively bait make their own hopper hooks by fastening two thin, soft wires to the hook shank with liquid solder. Wire stripped from a window screen is good. Set Mr. Hopper on the hook, wrap the wires around his body, and twist the ends together.

To fish grasshoppers under water it will be necessary to pinch a split shot or wrap-around sinker on the leader a foot or so from the hook.



Hoppers can be fished with any tackle from cane pole to bait casting rig. A fly rod will handle them nicely, as will a spinning outfit with a plastic bubble or a lead sinker. A clincher sinker makes them easier to cast with a bait casting rod and reel.

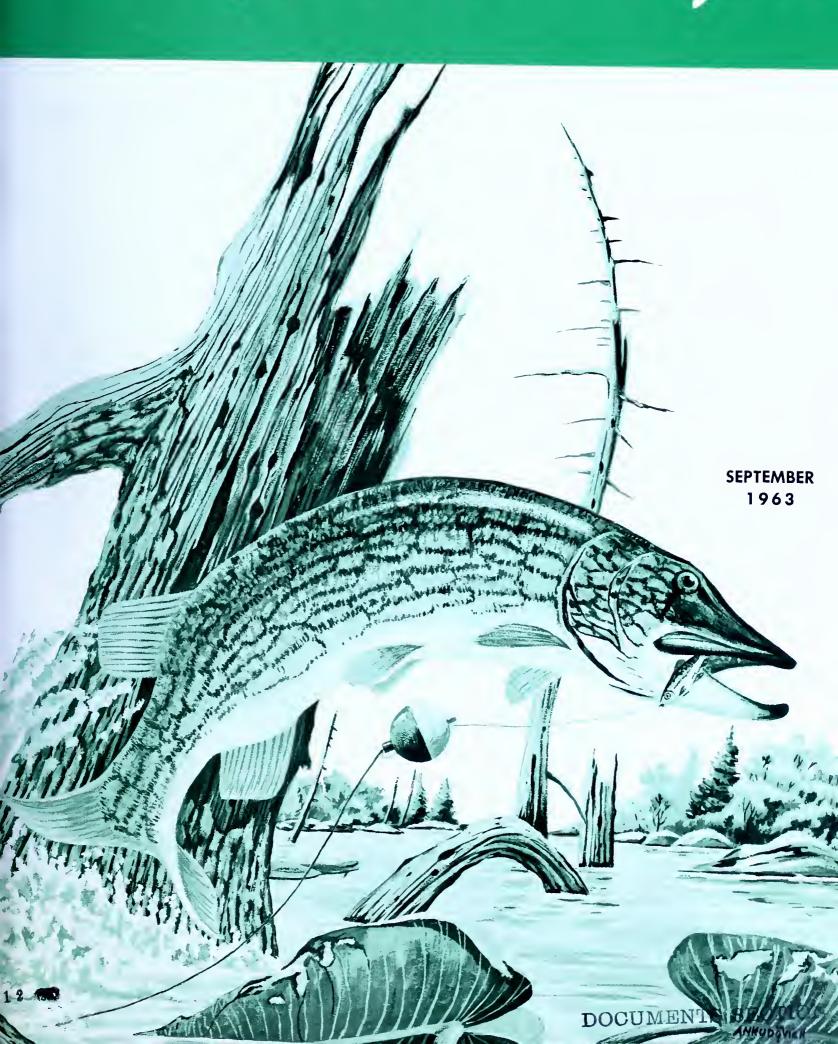
Hoppers are great bait for farm pond fishing—both bass and bluegills will take them eagerly. Fishing the creeks with these insects is equally enjoyable. You never know what will hit next. Big fish or little fish, they all like the taste of grasshoppers.



"C'man, Dad, let's ga fishin'! The grass can wait."



Dennsylvania Angler



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GEORGE W. FORREST, Editor

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A Good Creel

THE 1963 session of the Pennsylvania General Assembly chalked up some real achievements insofar as Conservation measures were concerned. Among other actions

It approved and sent to the people for final determination PROJECT 70.

It passed a strip mine bill that is the toughest in the nation.

It provided an increase in fishing and hunting license fees to adjust the income of the Fish and Game Commissions to their cost of operation.

It resolved the long standing controversy surrounding the administration of boating in the Commonwealth.

We of the Fish Commission are happy with the outcome. Substantial and at times overwhelming support among the legislators for the measures we sponsored seems to indicate that our program is based upon a solid foundation.

Now we can begin to build back the services that we have had to discontinue during the last three years. We can even expand some programs when new revenues become available next year.

We plan to:

Modernize our physical plant and increase production at our hatcheries. Resume stream improvement projects on good natural producing waters. Construct new fishing lakes on clean waters of the state.

Fill vacancies on the warden force so that we may do a better job in the enforcement of the fishing, boating and clean stream laws.

Replace technical people we have had to release so that we may do a better job in managing the fisheries on all public waters of the state.

Appoint as Assistant Director for Boating the most outstanding and best qualified man we can find. His job will be to work closely with the increasing numbers of pleasure boaters on safety, education, enforcement and improved facility matters.

The new boating law provides for an Advisory Committee of five qualified boatmen to give the Fish Commission their best judgment on matters pertaining to boating.

All in all, this has been a good legislative session for the sportsmen of the Commonwealth.

We of the Fish Commission appreciate the generous support of the Legislature, the Administration and the sportsmen of the Commonwealth and look forward to doing our full share in assuming the new responsibilities placed upon us.

Our sincere thanks for your confidence!

Progress and Problems

of the

CLEAN STREAMS PROGRAM

By WALTER A. LYON, Director

Division of Sanitary Engineering Pennsylvania Department of Health

ISHERMEN have always had a deep interest in the Clean Streams program. Much of the progress in the program has come about through the cooperation, understanding, and support of interested individuals such as fishermen, sportsmen and conscrvationists and their organizations.

The use of our streams for fishing and other forms of recreation is one of the important uses of our streams which the Clean Streams program is established to protect. For that reason, we feel that fishermen will be interested in knowing what has been accomplished under the Clean Streams program during 1962. What follows is a summary of activities under this program during the past year.

The Control of Mine Drainage Pollution

The Sanitary Water Board chose to observe the 25th anniversary of the Clean Streams Law not by merely reviewing past progress under this pioneering law but by convening a National Symposium in Pittsburgh in June to discuss all aspects of acid mine drainage and to formulate specific solutions to the problem.

It is expected that the Symposium will have long-lasting and far-reaching effects. It proved that conservationists, sportsmen, and industry representatives could sit down across the table from each other and discuss objectively ways to minimize acid mine drainage pollution. Implementation of the Symposium proposals will call for concerted effort on the part of all who are concerned with the problem.

The continued pollution of the North Branch of the Susquehanna River from mine drainage, responsible for the killing of a record number of fish in late 1961, was attacked last year on several fronts.

The Glen Alden Corporation was ordered to submit plans for controlling its mine pumping discharges to prevent pollution of the North Branch, to conduct pilot plant studies and to regulate its discharges—all steps aimed at avoiding any possibility of a repetition of the 1961 incident as well as assuring permanent improvement in the condition of the river.

The Sanitary Water Board approved the appointment of an advisory committee representing industrial and sportsmen's groups and others interested in solving the North Branch pollution problem to review the Department's now completed comprehensive report on the mine drainage problem on the North Branch.

Plans were initiated for a continuation of a study of Toms Run, in and adjoining Cook Forest State Park, to determine the sources of pollution and methods of abatement.

The powers of the Sanitary Water Board in the field of mine drainage control have recently been clarified in one important particular. The Commonwealth Court, in a decision in the case of Sunbeam Coal Corporation, indicated that the Board is within its rights in including recreational uses of streams among the public uses to be protected.

Fish Kills

The Sanitary Water Board and the Department welcome the help of sportsmen in reporting instances of new pollution. Within the past year, we have started a program for aiding sportsmen in reporting fish kills to fish wardens and Regional Sanitary Engineers so that prompt investigation can be made, the pollution traced to its source, the cause eliminated and the responsible parties brought to account.

A pamphlet for sportsmen showing how to report fish kills has been prepared, and a sound-slide film on the subject is available from fish wardens and Regional Offices of the Department of Health to any sportsmen's group wishing to have a program on the subject. We are distributing these pamphlets at locations where fishing licenses are sold.

A total of 95 fish kills were investigated by staff mem-



THE LOCATION of every mining operation in the State is entered on topographic maps like the one being studied by these three staff members in the State Health Department headquarters. Complete information is filed on each such operation as to type of mine, receiving streams, and pollution control measures required for each.

bers and reported upon. The causes of 84 of these kills were found. In many of these cases voluntary contributions were made to the Fish Fund. Wherever a fish kill indicated the need for corrective action or enforcement, such action was instituted.

A severe drought extending from May until October produced record low flow conditions in many of the State's streams and was the underlying cause of a number of fish kills. Major fish kills occurred on the Delaware and Ohio Rivers caused by oxygen depletion and on the Susquehanna basin caused by mine drainage discharges.

The Control of Sewage Pollution

Hearings for more than 60 municipalities which have not yet complied with Sanitary Water Board orders to construct sewage treatment plants were held by the Board. Adjudications have already been issued in the majority of these cases. These are the final orders of the Board and are enforceable in court.

The Accelerated Public Works Aet passed Congress during the year, making about \$3,800,000 in additional grants available to Pennsylvania municipalities to build sewage treatment plants. Altogether, more than \$7,300,000 in federal grants and more than \$4,000,000 in state grants for sewage treatment plants for Pennsylvania municipalities were made available during 1962. These incentive grants have been credited with greatly aiding the construction of badly needed sewage treatment facilities during the year.

The Sanitary Water Board won an important legal victory when the Commonwealth Court dismissed an appeal by the City of Wilkes-Barre against a Board order requiring it to construct sewage treatment works.

By December, more than a dozen neighboring municipalities in the Wyoming Valley had Joined Wilkes-Barre in forming an authority to proceed to build a sewage treatment plant. This authority's system would serve about 180,000 persons.

Approximately 120,000 persons can be served by the new Johnstown Municipal Authority sewage treatment

plant, dedicated in September, 1962, which treats sewage from 19 municipalities.

Two new sewage treatment plants in Allegheny County have been completed in 1962. These plants will serve 90,000 persons.

The dollar expenditures for sewage treatment plants and intercepting sewers were impressive: \$21 million for construction or modification of 26 municipal treatment works; \$1.4 million for construction of 27 non-municipal works; \$24 million dollars worth of contracts were awarded for sewage treatment plants and interceptors.

The Control of Pollution from Industrial Wastes

Lake Erie fishermen and boaters will be interested to learn that, on orders from the Board, the Hammermill Paper Company in 1962 submitted a satisfactory schedule for meeting Board orders for complete treatment of papermill wastes discharged to the lake. Research is to be completed this year and the treatment works are to be in operation before the end of 1965.

Rules and regulations of the Sanitary Water Board on heated wastes discharges were implemented during the year. The first heated discharge studies in the State prior to issuance of a specific permit were initiated at the Brunner Island (Susquehanna River) power station, now under construction, south of Harrisburg.

The Bethlehem Steel Company installed equipment to prevent most of its cyanide wastes from polluting streams following several serious fish kills in the Lehigh and Delaware Rivers.

Major new treatment works were placed in operation to serve the West Virginia Pulp and Paper Company at Tyrone (a joint plant treating municipal sewage as well), the Atlantic Refining Company south yard plant at Philadelphia, the Albro Packing Company at Springboro, and the Downingtown Paper Company.



A WATER SAMPLE is collected from midstreom by a State Health Department field investigator for analysis in one of the Department's laboratories.



OPERATION of the treatment processes at one of the mony hundred sewage treatment plants in Pennsylvania is checked by the plant operator (left) and a sonitory engineer from one of the seven State Health Department regional offices.



ALL ACTIVE MINING OPERATIONS in the Stote (like this strip mine) are regularly reinspected by Stote Heath Department field investigators to make certain that acid mine drainage does not pollute nearby streams. Jeeps are invaluable in reaching some out-of-the-way operations.



WEIRING A DISCHARGE from a strip pit to meosure rate of flow, ond using a colorimeter to help determine the quality of the discharge, these State Health Deportment field investigators keep tobs on wostes that, unchecked, might pollute a streom.



WATER SAMPLES from State streams may be given as many as a score of tests in the Stote Health Department's chemical loborotories in the never-ending tosk of determining water quality and in tracking down sources of pollution.

Enforcement

One of the responsibilities of our work is enforcement. During the past several years, this aspect of our program has been functioning in high gear. Our Division of Law successfully processed 124 cases during 1962.

Our Clean Streams Law gives us the power to bring a criminal action against a violator, but it is usually much more important to us to have a violation corrected, and corrected quickly, than to have a violator fined. For this reason, we attempt to get a violator to take immediate corrective measures. Nevertheless, legal action is sometimes warranted. Our record in the courts of Pennsylvania during the past several years has been a successful one. Not one case involving the Clean Streams program has been lost. This court record has been especially helpful because the decisions have aided clarification of our authority under the law.

Field and Laboratory Studies

Staff members, serving as investigatory and enforcement agents for the Sanitary Water Board, made 13,207 field inspections of sewage and industrial waste plants and mining operations during the year. This was an increase of 12 percent over 1961.

There was a 20 percent increase during 1962, as compared to 1961, in the number of analyses performed by the Health Department's chemical laboratories in Harrisburg. More than 115,000 such analyses were made during 1962. Work on a U. S. Public Health Service grant for the study of organics in water and fish continued during the year. Numerous tests, using live fish, were made on samples from streams, wells and industrial discharges. Special tests were made on detergents and pesticides to determine their toxicity and to develop better methods of analysis.

To help determine problems and progress in the Clean Streams program, a 175-station statewide water quality network sampling program was initiated during 1962. All major streams in the State are sampled under this program every three months. The samples are analyzed and changes noted in stream conditions. The results give the staff information as to where additional work may be needed in correcting pollution problems.

Planning was commenced for water quality studies of the Codorus, Neshaminy Creek and Conestoga Creek basins. These studies will be made by Department of Health sanitary engineers. The Codorus and Neshaminy Creek studies will be in conjunction with the studies of these streams by the Pennsylvania Department of Forests and Waters.

The Department is cooperating with the U. S. Public Health Service and other federal and state agencies on comprehensive water quality studies of the Great Lakes basin, the Susquehanna basin, the Ohio basin, and the Delaware tidal estuary. The purpose of these studies, which will continue over several years and in which neighboring states in the basins are cooperating, is to assist in the development of comprehensive water resources plans for these basins.



Much work remains to be done before all our streams are as clean as they should be and as clean as we would like to see them. With continued emphasis on recreational assets of our Commonwealth through Project 70 and other efforts designed to make Pennsylvania a better place to work, live and play, the Sanitary Water Board and the Department of Health are very conscious of the contributions that the Clean Streams program can make toward these efforts.

Fishing Goes to College

By MARION RUBINSTEIN



-Pennsylvania State University Photograph

FISHING CLASS IN SESSION at Pennsylvania State University under the instruction of George Harvey who introduced angling classes about 16 years ago, the first offered for college credit.

ISHING as a combination of recreation, health activity and a builder of better citizenship, is becoming recognized more and more by the faculties of American colleges. Even some high schools now include fishing as a recommended physical education course.

That interest in fishing is interesting more and more school officials and students alike is natural, according to Dr. Julian W. Smith, director of Outdoor Education Projects for American Association of Health, Physical Education and Recreation.

"We regard fishing and related outdoor activities as a contributing factor to the general objectives of education and consider them essential if people are to be trained for the wholesome use of their increasing leisure time," he declares.

Dr. Smith, who also is associate professor of Outdoor Education at Michigan State University, continues: "The general goals of education, such as self-reliance, human relationships and civic responsibility are readily discernible in fishing and other outdoor education with specific implications for a command of the fundamental processes—health, citizenship, worthy use of leisure time, vocations and ethical character."

Recently an outdoor workshop for educators, the first in the West, was held at the University of California. Norman P. Miller, associate professor in the Department of Physical Education, reports that fishing was so popular a subject that he had to provide five outstanding casting experts to be available as instructors in casting and fishing techniques, to the attending educators.

Fifteen years ago, when George Harvey introduced his fishing classes at the Pennsylvania State University, they were believed to be the first offered for college credit.

"Public reaction was mixed at the outset," reports Harvey. "Since then, it has been favorable. There must be twenty colleges and universities now offering comparable instruction, not all for credit, but some for credit and others as part of their recreational programs."

At the University of Connecticut, fly tying instruction for both beginner and advanced students is conducted during February, March and April, reports Walter E. Burr, assistant professor there.

"About the first two weeks in May, fly casting instruction is given on one of the ponds on the campus," explained Burr. "In addition to the instruction, I also try to give the latest information on the local hot fishing spots where my students can apply the lessons learned."

Fly tying, with some work in bait casting and fly casting, is in the fishing course given at the Oregon State College, according to Ralph Coleman, director of service courses.

"We conduct our class during the winter term only. It is a two-hour class. We have four classes and have an average class attendance of 20. The Department of Physical Education feels that it is a very worthwhile course and makes a contribution to the leisure time of the individual."

More extensive is the fishing course at the University of Florida which was pioneered by Assistant Professor Frank Philpott, a nationally recognized angler. It was started in order to provide a recreational activity for physically handicapped students. Soon, however, other students wanted in and now fishing is one of the most popular courses with instructional classes, tournaments, field trips and principles of conservation.

"Although fishing is a noncredit course in the Department of Required Physical Education, over one thousand students have enrolled in these classes in the past eight years," reports Philpott. "Perhaps the students' attitude toward an opportunity like this is best expressed by one who wrote: 'I found the course particularly interesting because it teaches something of a practical and lasting value.'

"Since it's practically impossible to fish and worry at the same time, fishing is excellent therapy for persons of all ages in these times of tension."

Fishing soon will become the national sport in America, believes Thomas F. Krizan, instructor and Coordinator of Casting and Angling at the University of Illinois.

Casting at the University of Illinois was first taught in 1937. It was discontinued during World War II and reactivated in 1948. Now it operates as a bait, fly and spin casting course for a half-hour credit.

"The game of skish is played primarily and the student's grade is based mostly on the skill acquired in hitting targets and the form used in acquiring this skill," said Krizan.

"For added interest we brush over trick casting, fishing theories, lures, species of fish, fish habits, live bait fishing, and literature available. We make field trips to local lakes and ponds in this vicinity. Our major interest at the University of Illinois is the carry-over. If we teach someone a sport, we like to see him participate in it or at it."

Dr. Florence Cole is instructor in fishing at Florida State University. Her course is popular with both men and women. "It has proved most satisfactory for casters to join together to engage in practice casting and from this evolved the casting club," explains Dr. Cole.

At the University of Michigan, all freshmen entering the University from the secondary schools are required to take one year or two semesters of physical education, says Dennis Rigan, associate supervisor there. No credit is given.

"Our fly, bait casting and spinning classes usually meet in the second half of the spring semester for twelve periods," he explains. "This course is set up to give the students an opportunity to learn the skills of casting the fly, bait and spinning outfits. They also discuss the purchase and care of equipment, types of lures, when and how to use them as well as the nature, species and habitat of fish. Included are certain items of conservation of natural resources, as well as safety practices around the water."

The basic elements of casting are taught at the University of Maryland, according to Burris F. Husman, director of Required Physical Education. "The various methods of casting, spinning, fly and surf, are taught. Also we tell our students about the habits of various species of fish and the identification of these species, both fresh and salt water."

After this basic instruction, students make weekly fishing trips under the guidance of Jack S. Lowder, instructor, off campus to the neighboring ponds, lakes, rivers and Chesapeake Bay.

Fishing, Lowder added, is a serious subject at the University of Maryland and grades of the students are determined by a number of factors. "The skill test comes first," he says. "Each student is evaluated on his or her skill in using all the equipment and the manner in which it is maintained. There are two knowledge tests during the semester covering all phases of the course, including conservation. A student must pass this test. And then there is class performance. All students are evaluated on their day-to-day performance in class."

Just as many girls as boys take the bait, fly casting and fly tying courses given at the University of Wyoming, reports R. D. Watkins, chairman. To augment the course, there is a five-weeks session at a fishing camp established

in the Snowry Range of the Rockies.

"Our students are required to live at the camp the entire five weeks," explains Watkins. "The instructors live at the camp and teach the classes. Our course is very popular. One reason for the popularity is the fact that after the students are given instruction in bait, fly and spin casting, they go with their instructors to the field for practical experience."

One of the pioneers in establishing a fishing course in a college is State College of Washington. The students may elect it as one of the required physical education classes, says Glenn E. Galligan, chairman, Department of Physical Education for Men.

"Our objectives are two-fold," he explains. "One is to give instructions in and practice skill techniques in the different types of easting. The second is to develop an appreciation for fishing through acquisition of skill, techniques and a knowledge of the things that make a good fisherman."

In this fishing course, the students study about the seasons and fishing laws, safety, where to fish, equipment and care, clothing, motors, lines, knots and hitches; castings insects and fishing lures, do's and don'ts of fishing, fishing as a recreation, fishing resources, expenditures on licenses and equipment, fish ponds and soil conservation.

Perhaps the most far reaching fishing program is one carried on by the New Hampshire State Planning and Development Commission and starts in high school.

Classes are held after school hours in the Penacook High School, usually at night, with Philip Delehanty as instructor.

"Nearly fifty showed up for fly tying the first year," Delehanty reports, "in spite of the fact that the class is entirely optional."

The students elect officers each year. Second-year students become teachers and are assigned a new student whom they instruct. Part of the classes, however, are usually devoted to giving the "teachers" advanced instruction in fly tying.

The first year the class was started two local sportsmen spent the first half of the winter with a special group of a dozen youngsters. Then these youngsters became the teachers for a larger group. Delehanty has found that this method gets the best results when it comes to making flies for bass, salmon, trout, pickerel, etc.

The emphasis in the Penacook class is on good sportsmanship without special "deals" and stocked waters, Delehanty says. "The pupils prefer it that way," he explained.

Many parents have become interested in fishing through their youngsters, Delehanty adds. Generally these fishing classes have toned up sportsmanship in the village of Penacook. "A number of adults have figured that if the pupils could make and use artificial flies, so can they," Delehanty says.

This is generally true throughout the United States, adds Dr. Julian Smith. To encourage such interest in fishing, Dr. Smith invites any school desirous of initiating fly and bait casting classes to make application to him. On receipt of the application, Dr. Smith will then make arrangements with a member club to provide an instructor at the time and place mutually convenient to the instructor and students.

"If no member club is in the area, an attempt will be made to provide a competent instructor from other sources," says Dr. Smith.

Professionally taught courses in fishing are a boon to both the student and to conservationists. The students, besides learning correct fishing techniques and how to make lures, also acquire a knowledge of fishlife and the outdoors which will make their fishing more enjoyable. The conservationists' lot is made easier because the students become sportsmen and thus become more appreciative of the stream and woodland and their wildlife. A better fisherman is bound to become a better sportsman, and it's a good bet that a good sportsman is equally as good a citizen. So let's have more college educated fishermen.

-AMERICAN FORESTS



For Explosive Action After Labor Day

CHAIN PICKEREL (Esox niger), is dark green an the back grading into a yellow chain-like pattern on the sides. The fish are found in abundance in the northeastern counties of Pennsylvania. Pickerel slam from ambush at both artificial and natural baits equally well. Maximum length is about 30 inches.

try-Pickerel in Pennsylvania

By DON SHINER

Typical pickerel water is Lake Jean, a 275-acre lake suspended at an altitude of 2000 feet above sea level located on the fringe of the Allegheny Mountains straddling the Luzerne-Sullivan County line. The lake appears to mingle with the heavens, shining like a sapphire jewel in the morning sun. Only a thick ribbon of trees along the perimeter prevents the water from spilling into the overhead bowl of blue.

It is here that many anglers come for pickerel action and a chance to match wits with the muskellunge. The place is Ricketts Glen State Park. The time is late summer when a chill in the air and an occasional flaming leaf speaks of an inevitable change of season. During the height of this vacation period, many fishermen visit this picturesque spot. Come Labor Day, the lake is all but deserted. And it is then pickerel really put on the show! Fishing for pickerel backed by the gorgeous autumn foliage sets up one of the most exciting outings of the year.

Lake Jean was not always the productive pickerel and muskellunge spot it is today. The water has been miraculously changed from an almost sterile body of water containing only stunted perch, finger size bullheads and skinny grass pickerel, to a bright pickerel, muskellunge, walleye and bass spot by Pennsylvania Fish Commission biologists. The antiquated lake reclaimed, its 275 acres of water now offer some of the best pickerel action in Pennsylvania.

But like other State waters, fishing is tops along about autumn when most anglers hang up their rods for the year.



LAKE JEAN, 254 acres reclaimed by Pennsylvania Fish Commission bialogists, as it was on opening day, June 15, 1961.

MINIMUM SIZE af pickerel caught in Pennsylvania is 15 inches with a creel limit af six. The season in inland waters apened May 11, 1963 and closes midnight, March 14, 1964.





EVERYONE'S FISH, the chain pickerel doesn't give a hoot who's on the other end of the rod. These young fellows bonged into a couple of willing customers.



EARLY AUTUMN fishermon gets plently of pickerel oction when frost fogs hong over the woters.

MIXED BAG is often o reword for pickerel fishermen including bass, yellow perch plus other species in Commission monoged lokes and ponds.

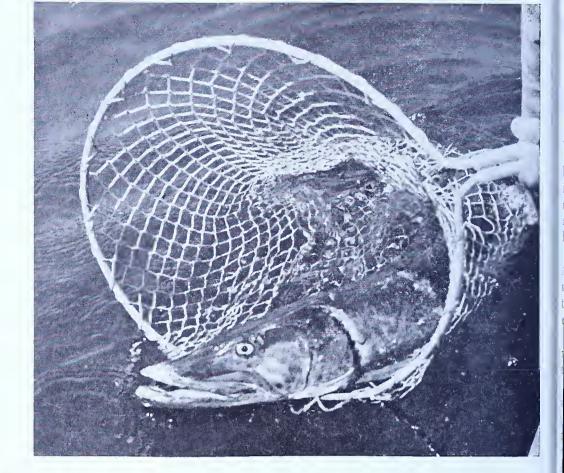


MANY LAKE AREAS offer excellent pickerel fishing when the air hos a bit of nip to it in September ond October.



VARIETY OF LURES ore used to tempt pickerel including spoons, wobblers and spinners in the weedless designs, for pickerel like weeds and grass.





By ERWIN A. BAUER

Findin' Muskies

"SHOW me a creek that's good for baptizin' and I'll show you a creek that has muskies." Steve Sites' background as a former traveling parson was showing.

"Take the lower Shenango bottoms for instance," he continued. "There's muskies in those meadows. Find a pool that's still and deep enough around the edges to dunk a dozen or so converts and you're in good water to catch one of them devils."

And old Steve wasn't too far wrong. Find a slowly meandering stream in northwestern Pennsylvania with mud bottom pools, some vegetation, and no visible current and you've found a place where muskies—perhaps some of the jumbo-size editions—dwell.

"But finding muskies is like savin' lost souls. It's far from a guarantee of fillets in the pan. Chances are you'll put in plenty of time before you're showing a bragging fish around town," the aging angler always added.

Nowhere in their entire range are muskies easy to catch nowadays. Of course you will hear of the panfishing housewife who hangs a whopper on a hot August afternoon. And every locality boasts of the rank beginner who landed a trophy musky on his first fishing trip. But these are rare incidents indeed. Musky fishing is a rugged, monotonous business. But—it has numerous rewards.

Muskies are taken more or less accidentally by the bass and walleye fishermen. There is no denying that. But a general knowledge of musky ways, habits, and environment is all these fishermen need to become hopeless musky addicts.

Many muskies are taken on light tackle. But that's like hunting partridge with a slingshot. You can do it, but you would be better off with a casting rod of considerable backbone. For this one type of angling alone I still keep a 5½' stiff casting rod. No other weapon can consistently set the hooks deep enough into the bony jaw of a musky. Your reaction to the strike is the critical moment in musky fishing. If that is done successfully, you can almost bank on a successful ending. Remember, if you can in the excitement of the moment, to strike hard several times.

But let's go back a little. Let's assume that you are not satisfied awaiting a musky strike while you fish for bass; you want to go right out after the big boys. Well, you're in for many monotonous hours of casting. But if you do it right your big moment will come suddenly enough to turn your hair gray.

Your best bet is to locate a musky, or several of them, if possible. It isn't as hard as it sounds because you can do it while you are fishing. Constantly keep an alert eye for musky movements. These will be in the form of heavy swirls just under the surface. Rarely will they break the surface.

Before approaching a deadfall or log jam along the bank, observe for a few minutes to see if you can detect any movement down among the snags. Be especially watchful as you approach the obstacle for the movement of a long thin shadow. On one or two occasions when water and light conditions were exactly right I was able to approach near enough to see a musky hiding motionless

under a fallen sycamore. More often, though, the only clue will be a shadow fading away into deep water as you draw near. Mark that place well!

Once you have discovered a musky lair you can go to work. Perhaps not the same day you spooked the fish—at least I have never had any luck that way—but starting on the very next trip. Select a position a good cast away and go to work.

If repeated casting to the same general area bores you, better stick to trout or the other lightweights. Remember, I said this was monotonous business, and that was an understatement. You'll have to change lures occasionally, and you'll have to vary your retrieves, but you will not have to change your position too much.

Plugs are good; most all of the popular bass models. And you don't have to retrieve them at high speeds as you may have read before. Frequently I try fast retrieves but these meadow muskies, unlike their cousins in the north country, seem more interested in slower moving hardware.

Try this occasionally. Break up a very slow, deliberate retrieve with sudden fast darts. Day in and day out, I think it is the most deadly.

After you have cast until your patience is exhausted, and that may vary from several hours to several trips, you will lost interest. You will toss your bait listlessly. Your mind will wander to a cold glass of brew or to the days when you could always catch a mess of trout without much effect. You've doggone near forgotten where you are when—socko—you have a strike that has you talking to yourself. They never come when you expect them. That brings us up to date. If you remember to strike back hard and sharp—you'll have a fish. If not, you have good cause to go after that cold brew.

Besides the usual run of proven plugs, and you should stick to sinking plugs almost exclusively, many of the spoon-hook and spinner-bucktail combinations are effective. Generally you should use the spinners in deeper waters. Move them a little faster than the plugs. Most of the time I use a medium retrieve, moving the rod tip slowly up and down as I wind. My line, incidentally, is 18 or 24 pound test.

Perhaps it's habit more than anything else, but I prefer a black bucktail behind my spinner. Almost to a man, however, the fraternity of musky fans who work the streams in southern Ohio (similar physically to Shenango and the Allegheny) use either yellow or white buck-tails. To tell the truth, though, most of them use live bait at least part of the time—and they catch big fish.

Here's the way they do it. Large chubs are preferred. To most effectively use bait, you should have a stiff casting rod, a reliable reel, and a bobber—nothing else. You can either hook the bait fish through the tail or you can use one of the many harnesses found on most tackle shelves. Few occasions call for sinkers of any type. The bobber serves only to locate your bait and to some extent in keeping it from becoming entangled in underwater snags and roots.

Cast the bait into all likely areas, and especially into those places where you have seen muskies. Better still allow the bait to swim at will around these spots. Always keep it moving. Not in the sense of casting and retrieving, but give it occasional jerks. Try to keep your bait alive.

The strike of a musky on a live chub is nothing like that on plug just beneath the surface. It is slow, deliberate—

almost leisurely. Here again it's a case of virtually losing interest when slowly the bobber moves down and away.

Generally the fish will not carry the bait too far. A long initial run usually means a small fish. But there are exceptions and in any case you should be prepared to feed line easily and without drag. At this point you had better be a patient angler, for after the first run stops, you probably have a long wait.

Just what takes place down there in the water is uncertain. Some say the musky turns the bait around to swallow it head first. Some say he scales it for better digestion. Whatever it is, he's in no hurry about it. Nine times in ten, to strike before a second slow run starts is to lose your fish. Wait him out and then hit him hard. Real hard.

For all the labor and drudgery involved, musky fishing in the meadows can be as restful and contemplative during the dull moments as it is hair-raising when the action begins. It takes you afield in early summer when delicate flowers carpet the stream banks. If luck is with you, you will have fleeting glimpes of wood ducks with a brand new brood of ducklings.

To play this musky game for all it's worth, you'll be on the stream in autumn when the atmosphere is like wine and the color is fantastic. Your chances of a trophy will be the very best, too, when you have to wear long underwear and an extra woolen shirt.

Neither time nor time of day means anything to muskies. Perhaps they are active at night. I've never fished for them then, and have never known of anyone who did. But generally, dawn is no better than dusk and a strike may come at noon just as often as either of those. One fact is worthy of mention, though, and that is a preference for dingy weather.

In thumbing back through my fishing diaries, I notice many references to the dull days with overcast skies and a persistent drizzle. Muskies seemed most active on these occasions. Here's a sample. "Nov. 4–Shade R.—missed (my) only strike at about 9 a.m.—light rain all morning—Herman Davies hooked musky (while) standing on deadfall, dropped (his) gaff in water, slipped off and lost fish."

That incident reminds of something besides the weather. If you plan to get into this musky fishing seriously, carry a large landing net or a small gaff. The fish are hard to handle, especially if you are casting from a steep bank. Except for boat fishing, a landing net is too awkward to be practical.

These meadow muskies have one more bad habit. We've saved this until last so that you would read the whole article. Maybe you've heard how muskies will follow a lure time and again. Perhaps it has actually happened to you.

You cast over and over. You change lures. You change retrieves. Every time, the musky follows your bait almost to the boat or bank. He seems to glare malevolently at you for a moment and then slowly sinks out of sight. But he will not strike. Nothing in all the outdoors is so exasperating. Nothing is so frustrating.

But I have a solution. Collect a can of catalpa worms, crickets, or grasshoppers. Find a nice creek or lake somewhere—and settle for a mess of panfish.



by Paul Power

N A recent weekend I had the opportunity to float Tioga County's fabulous Pine Creek Gorge with a well-organized group of Explorer Scouts from McKeesport, who were so impressed with their adventure that they have already made arrangements to repeat the trip next year.

The group was outfitted and guided by Ed McCarthy, who is better known to many outdoorsmen as 'The King of the Canyon.' Ed has taken approximately 7,000 persons through Pennsylvania's Grand Canyon Country by rubber raft without a single mishap of any kind. Considering the dangerous Owassee Rapids and the many fast water shoots, this must represent some kind of safety record for outdoor adventures.

The Canyon Cruise is a two-day float trip covering 27 miles of Pennsylvania's most scenic wilderness, most of which can be seen only by raft because of its inaccessibility. Fishing, taking spectacular pictures, swimming, relaxing, and camping out along the way are only a part of this great adventure.

The float season on Pine Creek is only four months long—from March first (after the ice goes out) 'til July first, when the water gets too low for easy floating. For this reason reservations a year ahead are not unusual, with many Scout troops and sportsmen's clubs returning year after year.

From Canyon Lodge, the halfway mark where the groups stay over night, two of Pennsylvania's most scenic parks are visible—Leonard Harrison Park on the rim to the east, 1,000 feet straight up; and Colton Point State Park on the west rim, both of which can be explored after a one-hour hike.

Entering the Canyon at this point is Teddy Roosevelt's favorite trout stream, Four Mile Run. This stream, with it's many rushing waters, falls, and pools, which abound with native brook trout, is as close to Nature as it is possible to get in Pennsylvania.

Highlighting the cruise was a barbecued chicken dinner, served with baked potato, fruit salad, and other goodies by the well-trained guides at Canyon Lodge. The good food, clean sweet water, and invigorating fresh air made one feel this was life at its very best.

A non-sectarian religious service on Sunday morning among the beech and hemlocks (a natural setting provided by Nature) would have been an inspiration to even the most unholy.

The second day's float ended at Blackwell, Pa., where the rafts were deflated, loaded into cars along with all the gear, and the group returned to the Antler's at Rexford, Pa. There, the boys cleaned up, had a delicious turkey dinner, and climbed into the cars for the long journey home.

Exit wonderful weekend.

Photos by 7om Eggler



EMBARKATION POINT. Rafts are lined on the bank ready to loaded with sleeping bags and extra clothing. The large round at left is used by Outfitter Ed McCarthy, as the "flagship."



PADDLE PICKIN'. Rule of the thumb is that it should be as high as your nose. If a scout falls overboard, he is required to hang on to his paddle.



MAN FROM OUTER SPACE. It vival suits are a must to a from getting soaked during journey.



LAST MINUTE CHECK. Three Explorer Scouts check air pressurither rubber raft before embarking on the cruise.

A N

C R



ON OUR WAY. The golden fleet of rofts shove off on the stort of o 27-mile, two-day odventure. Each year hundreds of outdoor-minded people view Pine Creek Gorge by flooting in this monner.



FLAGSHIP. These young odventurers rig o most to fly the colo distinguishing them from every other raft. Fun, excitement a spectocular scenery on o Conyon Cruise.



ON THE ROCKS! At Owassee Ropids. Four Explorer Scouts find thrilling outdoor odventure as they float the fastest stretch of water in Pennsylvonia's Grond Conyon.

"THROW ME A LINE!" Assistance is offered in landing a roft. The turbulent white water of Pine Creek offers plenty of challenge to the floating Scouts from McKeesport, Po.





Boating

th Robert G. Miller



"SAFETY first, recreation second."

Such is the policy of the Bethlehem Boating Club Inc., an organization now in its fifth year of operation serving boating interests from Allentown, Bethlehem, Easton and even the Phillipsburg, N. J., area.

This is far from being a social group. Instead, as James E. Toggart, immediate past commodore, mentioned "the club is dedicated first to safe boating and then to wholesome family boating with emphasis on family recreation seeing to it that mom, dad and the youngsters have a good time."

A lot of hard work, really back breaking labor, was required before the club reached its present status since it was formed as a non-profit organization with an extremely small nucleus of interested boaters.

In fact, Jim noted, although they had only nine members they were, as he described them, "God's chosen people" who knew what they wanted, knew how to get it and were willing to work for it.

Their first step was the acquisition of a portion of Oberly Island, located in the Lehigh River about midway between Bethlehem and Easton, in Bethle Twp. The island, cut off from the mainland by the old Lehigh Canal, is about six miles east of Bethlehem.

About one third of the island was leased from the Lehigh Coal and Navigation Co. and work was begun building a causeway to bridge the old canal. Then this small group of members cut about 1,800 trees to clear at least a portion of the area, hauled over 2,000 tons of rock to fill a swampy area, and then graded the area for parking and launching.

Fortunately most of them had access to equipment required for the initial operations, as well as others that followed, all of which build up to amazing proportions when you consider what the club now has to offer was created in a relatively short span of time.

Toggart, who is no slouch when it comes to praising the organization, has most of this information at his finger tips and occasionally, sometimes in his capacity as commander of the U. S. Coast Guard Auxiliary, Flotilla 104, makes good use of it before other organizations to show just what can be accomplished even with just a handful of members.

In addition the group has a pictorial history of its progress, in both 35 mm slides and 16 mm movie film, which is used to illustrate talks on the various programs.

Toggart explained that after the area was cleared sufficiently they started work on the docks, all of steel construction with wood planking, and then constructed a pile driver to drive the standards into three feet of bedrock. To these were welded finger piers each capable of handling two boats. There are now 25 such piers and a 60-foot straight docking area parallel to the river for the larger craft. As a rule, he said, most of the members operate outboard powered craft, 14 to 16 feet in length, with an average horsepower of 30.



Realizing that sanitary facilities are a must, the club built a concrete block structure complete with flush toilets; dug a 327-foot well last year for the water system, put together about 25 picnic tables, and even provided a recreation area for the children complete with swings, a sandbox, teeter boards, etc. Someone, somehow, managed to beg the latter from a local day nursery when it went out of business.

Finally (but I doubt it) they imposed upon the Pennsylvania Power & Light Co. to string a line to the island, installed a telephone for emergency use, improved the ramp by widening it to 62 feet, by 110 feet long, with a slag rock base covered with black top; and then cleared off more land for parking about 300 cars.

Last year, after it was determined the river wasn't safe for the youngsters, it was decided to build a pool especially for them. Consequently a 42 by 60 foot pool, ranging in depth from 6 to 31 inches, was constructed on the island. It is completely fenced in as a safety measure, and is equipped with one of the finest filtering systems available.



The club's other interests include entertaining underprivileged children, conducting safe boating classes for local Boy and Girl Scouts, conservation practices and operating a nightly patrol to assist in any emergency.

The latter project, carried out over the summer months and well into the duck hunting season, was started some time ago when Toggart found a fisherman slumped over in his boat, apparently the victim of a heart attack. Toggart brought the man ashore and as a result that fellow is alive, and perhaps still fishing, today.

Twice a year the underprivileged children of the Lehigh Valley area, through the cooperation of local welfare agencies, are brought to the island for a day's outing and then returned home that evening.

Conservation is also practiced by the club. Trees are never cut unless it's absolutely necessary, and then two or three are planted in its place to provide natural surroundings for wild life which include deer and even a few wild turkey. Two professional bird watchers are also given the run of the area making it possible for them to set up blinds, equipped with automatic cameras, and thus maintain a constant check on the bird life.

The club, because of its stress on safe boating, is proud of the fact that its members have never had a serious accident. Local boating conduct, compared to elsewhere, is reported as excellent and the members are always willing to lend a hand, or a tow, when needed.

Drawing from a radius of 21 miles, the club currently has an active membership of about 65 persons. The club charges \$10 a year dues plus an assessment of \$15 which is earmarked for the capital improvement program. Also the officers solved the problem of having only a handful of workers by requiring 25 hours manual labor from each member.

The entire program is on a share and share alike basis. There is no rank pulling. Members can tie up to any finger pier and they can use any picnic table, with no one to tell them that this or that is reserved.

General membership meetings take place once or twice a year at the home of a member but it's the Board of Directors that makes the decisions and gets things done.

The present commodore of the organization is Ken Remaly of Bethlehem. Other officers and directors, in addition to Remaly and Toggart are: Arthur Metzger, Joseph Kirchmor, Robert Getz, Dr. Raymond Myers, Walter Beck, Herman Herkorm and Joseph Posch.

WO LYCOMING County men, one from Williamsport and the other from Montoursville, completed a canoc trip down the Susquehanna River to Columbia, Lancaster County, on Saturday, July 6, and while they described it as a "barrel of fun" they were faced with problems all the way.

The trip was made in three days by Clcon Berry, Williamsport YMCA, and Paul Hummer, 1217 Mulberry St., Montoursville, neither of whom had ever had too much previous experience handling a canoe. Traveling as light as possible they left Williamsport on Wednesday morning, July 3, and reached Columbia, a distance of about 150 miles, about noon Saturday, July 6.

Both men advised carrying only the bare essentials. Their equipment included sleeping bags, an extra pair of shoes, one change of clothing, first aid kit, water and one meal. Other meals were obtained along the way. Even shaving equipment was left behind and both were a bit bewhiskered at the end of the trip.

The sun was one of their major headaches. Both men wore sun glasses but the constant glare off the water burned their skin and provided swollen hands at least for Hummer. Olive oil was used to lessen the pain.

Another problem was the lack of available information about stream conditions ahead. Folks would tell them to take this, or that channel only to find it was the wrong one. Then they had to waste time finding the right channel through the various rock ledges they encountered.

Once both men were dunked in the water, the bottom of the canoe had to be patched more than once during the journey, and there was no time for sightseeing while racing through white water (yes, there is such a thing along some sections of the Susquehanna River) with rocks on either side.

However, despite these hardships, both Berry and Hummer are ready to shove off again, but not the same stretch of the Susquehanna. They would rather try one of Pennsylvania's other waterways.

Outboard Should Not Be Run Out of Water

SOME outboard boatmen make it a practice to start their motors after they have been removed from the water. The idea is to expel any water that may be left in the cooling system. Although the theory is sound, this practice should be avoided. In most cases, the water will drain out by itself and, except in freezing weather, the small amount that may be left will not hurt anything.

Running an outboard motor out of water for even a short time can cause overheating and will invite water pump damage. If you want to make sure all of the water is out before putting the motor away for an extended period, disconnect the spark plugs and give the starter rope a few easy pulls.

Don't Forget Drain Plug

EVEN the most experienced boatmen may occasionally forget to replace the drain plug in his boat. A good way to avoid this is to make it a practice to check the drain plug at the same time you hitch up your trailer before leaving home.



WALLACE C. DEAN
New Commission President



JOSEPH M. CRITCHFIELD

New Commission Vice President

FISH COMMISSION ELECTS OFFICERS

HE Pennsylvania Fish Commission at its July 29, 1963 meeting at Harrisburg, elected **Wallace C. Dean** of Meadville, Crawford County, to serve as its president. Mr. Dean was first appointed to the Commission in May, 1953, was reappointed in April, 1961 to serve until January 1969. A life-long fisherman, he has been constantly active in statewide sportsmen's affairs and organizations.

Joseph M. Critchfield of Confluence, Somerset County, was elected vice president of the Commission. He was first appointed to the Commission in 1940, again appointed to serve until January 1958, was then reappointed to serve until January 1966. Mr. Critchfield has been a pioneer in the activities of the Southwest Division of the Pennsylvania Federation of Sportsmen's Clubs and other organizations of the area.

Sewickley Club Builds "Fishing Hole" For Kids

YOUNGSTERS from Edgeworth, Sewickley and surrounding communities are going to have a good fishing spot, thanks to the joint efforts of the Sewickley Shooting and Fishing Club, business firms of the Ohio valley, and individuals who are interested in the welfare of the younger generation. During the past several months men and machinery have been working to rehabilitate four miles of Little Sewickley Creek in and near Walkers Park, creating a fishing stream for youngsters.

The project is sponsored by the Sewickley Shooting and Fishing Club and is under the direction of Walter Walters.

At the present time work is nearing completion within Walker Park. Work will continue upstream until the entire four miles have been turned into a fish paradise. Over 3,000 trees have been planted along the stream,

some of which were donated by the Sewickley Garden Club; others were purchased from funds donated to the Sewickley Shooting and Fishing Club.

Sixteen tons of logs used in the construction of the deflectors and single log dams, ranging in length from 10 to 32½ feet, were hauled from Sharon, Pa.—a contribution from C. E. Kinsing, president of the Pittsburgh Custom Builders. H. H. Robertson Co., American Bridge Company, Bell Telephone Co., and Duquesne Light Co. are several of the firms who have given support to the project.

The Child Health Association of Sewickley is the most recent organization to contribute financially to the project.

A few of the men who have made outstanding contributions of time and effort to this stream improvement project are: E. H. Need, John Schwartz, Carl McCreary, Don McCreary, Joe Hatton, Fran Start, Walter Zimmerman, Gasper J. Breck, Jr., and R. S. Garrison.

ROBERT M. RANKIN APPOINTED TO PENNSYLVANIA FISH COMMISSION



ROBERT M. RANKIN

Robert M. Rankin, of Galeton, Potter County, has been appointed by Governor William W. Scranton, as a member of the Pennsylvania Fish Commission. Confirmed by the Senate, Mr. Rankin will serve until the second Tuesday of January 1971, replacing Albert R. Hinkle, Jr., of Clearfield, whose term expired.

Mr. Rankin was born on December 2, 1915 in Buffalo, New York. He graduated from the St. Petersburg-Richland Township Consolidated High School, Clarion County, Pennsylvania in 1933.

"Bob," as he is better known, has been a partner in the firm of Bosek and Rankin Motor Sales engaged in the sales and service of Ford Products in Galeton, Pennsylvania for over 25 years.

During World War II he served as an instructor in the Armored Corps at Fort Knox, Kentucky.

Active in local civic affairs, "Bob" has been President of the Galeton Boro Council and a Councilman. He is a member of the American Legion, Octagon Post #291 and Rotary International, Galeton Chapter.

Since the origination of the Potter County Anglers' Club in 1958, "Bob" has been president of the organization which has successfully reared to date 100,000 trout from the fingerling stage to legal size. (Several articles depicting the success of the club's nursery project have appeared in past issues of the Pennsylvania Angler.)

The 48 year old Anglers' Club president has long been an ardent sportsman and active in several sportsmen's groups in the area. Through his association with the Anglers' Club, he gained considerable knowledge of trout propagation and distribution.

"Bob" resides in Galeton, Pennsylvania. He is married to the former Ruth Bosek; they have one daughter.



J. ALLEN BARRETT

Fish Commission Pays Tribute To J. Allen Barrett

HE Fish Commission at its July 29, 1963 meeting passed a resolution paying tribute to J. Allen Barrett, retired former conservation-education chief of the Commission, who died July 27, 1963.

Mr. Barrett, a native of Lykens, served the Fish Commission for more than 20 years. He joined the commission on October 1, 1940 and was assigned duties as a lecturer. In addition, he edited the Pennsylvania Angler for many years. He was one of the five organizers of the Pennsylvania Outdoor Writers Association of which he was a charter member.

In November 1947, he was named Director of Public Relations, later became chief of the Conservation-Public Relations Division of the commission. He held that position until 1956 and again from January 18, 1960 until December 30, 1960 when he retired.

The Pennsylvania Angler, the magazine he edited for many years, joins the members of the Pennsylvania Fish Commission in paying this final tribute to a fine public servant and a gentleman.

Indian Summer is a magic interlude between fall and winter. Days are softened by a mystic haze, which according to legend, is the smoke of Indian campfires around which the spirits of departed braves gather to relive their harvest time. Henry Wadsworth Longfellow described this lull of nature thus:

"It is the Indian Summer. The rising sun blazes through the misty air like a conflagration. A yellowish, smoky haze fills the atmosphere, and a filmy mist lies like a silver lining on the sky. The wind is soft and low. It wafts to us the odor of forest leaves, that hang wilted on the dripping branches, or drop into the stream. Their gorgeous tints are gone, as if the autumnal rains had washed them out. Orange, yellow and scarlet, all are changed to one melancholy russet hue. The birds, too, have taken wing, and have left their roofless dwellings. Not the whistle of a robin, not the twitter of an eavesdropping swallow, not the carol of one sweet, familiar voice. All gone. Only the dismal cawing of a crow, as he sits and curses that the harvest is over; or the chit-chat of an idle squirrel, the noisy denizen of a hollow tree, the mendicant friar of a large parish, the absolute monarch of a dozen acorns."

THE RIGHT FIT IN A FLY LINE



HERE is still endless confusion in the minds of fly fishermen about this matter of fly line size.

The men who have been at this business of fly fishing for some time are not at all sure about the new numbers. The old HCH is now a DT-6-F, whatever that means.

The younger anglers who want to take up fly fishing read that you must balance the weight of action of your rod with a line of proper weight and taper. If this information isn't written on the rod or the tag which comes with it, they're really confused. Not only that, a lot of the clerks in sporting goods stores are just as confused, since many of them never fly fish or never have had much experience with this specialized equipment.

The tyro can get straightened out in several ways. He can send the full description of his rod (length, exact weight, model number, etc.) to the manufacturer and ask what line is recommended. He can hunt up one or more of his fishing acquaintances and try their different size lines long enough to make a few casts to see what one seems to work best. Trouble with this idea is that too few of the real greenhorns in the games are qualified to know which works best.

So, a better bet is to go to the top fly fishermen in the areas, and there are always a few in any community. He should have at least three or four fly rods and fly reels and maybe a half-dozen outfits if he's a real fly nut. Since most of these men are devoted to the sport, very few will hesitate to work with the novice to get him started on the right foot. With a few casts, he will be able to tell you what size line to purchase and what taper will be best suited to your needs.

While you're there, he might even show you how to cast!

All Depends on the Weight

Now to get back to the befuddled oldtimer, let's see if we can straighten out his confusion with the new fly line sizes.

The old letter system, A to I, referred to line diameters. Thus A, the largest, was .06 inches in diameter and I, the smallest, was .02 inches in size. This was fine when all fly lines were made of silk. But when the new nylon and dacron lines were introduced, problems developed. Nylon was lighter than sik and dacron was heavier. So, an HCH in one material was by no means the same as an HCH in another. Consequently, the rod manufacturers couldn't simply recommend a certain line size for their own products.

Since weight, not diameter, is the critical factor in balancing a rod with a fly line, the old letter designation for diameter was dropped and a new number designation for weight was adopted. Using the "grain" as a weight unit (437½ grains in one ounce), the Nos. 1 to 12 were assigned to line sizes ranging from 60 grains to 380 grains.

This system was based on the weight of the first 30 feet of the "working" portion of the line, exclusive of any tip on a taper, as measured from the very beginning of the taper.

It's Simple But You Still Need Advice

A table was set up as follows: 1-60 grains; 2-80; 3-100; 4-120; 5-140; 6-160; 7-185; 8-210; 9-240; 10-280; 11-330; 12-380.

The letters which accompany the weight number refer to the taper and whether the line is floating (F), sinking (S) or intermediate (I) in nature. If we look at the new DF-6-F, which is the same as the old HCH, we find the DT stands for double taper and the F for floating. L denotes a level line; WF a weight forward line and ST a single taper line.

The whole system's quite simple after you study it a little while but choosing the right line for the rod is still just as complicated as ever unless the manufacturer has done the job for you. But even then he can't guess what you're going to fish for and what you're going to use on the end of your leader. If you throw size 18 dry flies, you wouldn't necessarily want the same taper as the man who was going to throw bass bugs, little poppers or even wet flies.

If you were going to make long casts for salmon or bonefish, you would want a weight forward line. But if you were going to use your rod exclusively for fly fishing small Pennsylvania trout streams, a double or single taper might be a better choice.

With the price of a good tapered line running in the \$8 to \$12 bracket, it doesn't pay to make too many mistakes in choosing one for your rod. This would be particularly true if you were to get one of the new "lifetime lines" at \$35 and discovered you had the wrong size.

With some good advice and a little experimentation, however, you should be able to purchase with confidence. And you should come up with an outfit which will bring you many, many hours of real pleasure on that mountain trout stream, that smallmouth bass river or that bonefish flat in the islands.

—ROGER LATHAM IN PITTSBURGH PRESS

BAKED PICKEREL WITH RICE

with

Fish Ketchup

Temperature—350 deg. Fahr.
1½ cups pickerel, boiled and flaked
1 cup ricc, cooked in salt water
4 cups milk

Time—35-45 minutes 2 tablespoons butter 1 egg, well beaten ½ cup bread crumbs ½ teaspoon salt ¼ teaspoon pepper

Mix all of the ingredients excepting the bread crumbs. Cook 10 minutes in a double boiler to blend. Pour into a buttered baking dish and cover with buttered bread crumbs. Bake until set and the crumbs are brown. Serve with—

Fish Ketchup (Century-Old Pennsylvania Recipe)

Take more than a pint of vinegar, three pints of red Port, two tablespoons of pepper pounded very fine, plenty of shallots and horscradish, the peel of half a lemon, two or three bay leaves, and a pound of anchovies; let the whole boil together until the anchovies are dissolved, then strain, and when cold put into bottles.—J. ALMUS RUSSELL

THE LITTLE PICKERELS

By KEEN BUSS

Fishery Biologist
Benner Spring Fish Research Station
Pennsylvania Fish Commission



SELDOM RECOGNIZED and rarely caught grass pickerel of western Pennsylvania.

THE glamour members of the pike family, the musky, northern pike and chain pickerel, have had thousands of hours devoted to their capture, but whoever spent even one hour angling for redfin or grass pickerel? To go a little further, how many fishermen even know that hiding in the weeds of some springs, lakes or streams are these diminutive members of the pike family—the unheralded "little pickerels." Every bit as pugnacious as their bigger relatives, they are unfortunately doomed to obscurity because they rarely reach 12 inches in length. But all is not lost for this species, for they too had their moments of glory. They had the great American treatment of being pampered and cared for as they were transferred from their native habitat into new local waters and across the Great Plains to new homes in Colorado and the State of Washington. But alas, this was just a case of mistaken identity. Those who pampered and cared for them thought they were the offspring of Mr. Esox himself, the muskellunge. Instead, it was just plain Esox americanus vermiculatus, the little grass pickerel from west of the Alleghenies.

The second little pickerel—the redfin—which abides east of the Alleghenies also had its own singular honor, for it had the distinction of being one of the first New World species to be recognized. In 1788, Gmelin first described this species from a specimen taken on Long Island, N. Y. He called it *Esox americanus americanus*, the "American Pike." Not scattered all over the world as is the northern pike, at the time, this was truly the All-American fish.

The pioneer of the family, the "Go West, young pike, go West" type, is found beyond the Alleghenies. It was on the banks of the song-stressed Wabash that LeSeur

stood in 1818 when he collected the first specimen of the grass pickerel to which he gave the species names of *vermiculatus*, referring to the not too poetic worm-like markings on its sides.

The redfin pickerel was originally called the "trout pickerel" and justifiably so when note is made of its habitat. When one thinks of springs and mountain streams it is almost synonymous with trout, but one could also relate this synonomy with pickerel—the redfin. For example, at the source of two large limestone springs near Allentown, the redfin is as abundant and adapted as the trout with which it shares the clear flowing water. In the Pocono Mountains, in the tributaries of the Lackawaxen, the Pocono Creek and other famous trout streams, this little pickerel lives in perfect harmony in its environment. In the western portion of the Commonwealth, the grass pickerel does not necessarily have steep gradient mountain streams that it can call home. Instead it has adapted itself to the local topography and is found in abundance in areas with silted bottoms in swampy streams and the weedy portions of large and small lakes. Its affinity for areas of soft bottoms has resulted in its local monicker-"mud pickerel."

The love life of the little pickerels is very similar to its larger relatives. For instance, the grass pickerel, in lakes such as Canadohta and Conneaut, has the urge and the courage to run to the spawning area with the northern pike. Moving with the pike in late March and early April, it runs to a quiet vegetated area and there the procreation of the species begins. As in all animals, it takes two to make love and the little pickerel are no exception. Not to be caught late at the nuptials, the male is already waiting over the vegetated area when the spawn-swollen female Slowly escorting her as she meanders above the weeds, he gently nudges her along and at each emission consideration is not a lasting thing nor could this aquatic pair be called devoted parents. As the female completes her spawning, the two are separated probably never to see one another again, or at least not until the next spawning season. The eggs and fry are deserted. If the eggs are not destroyed by some environmental disaster or eaten by an egg predator, the fry must face the cruel world with only their innate cunning and ferocious reputation. This, of course, isn't enough. The little orphans take an enormous loss from the original 1,000 to 10,000 eggs laid by one female.

Living on minute insects and crustaceans when small, and tadpoles, large aquatic insects and fish as they grow larger, the little pickerel may grow from 3 to 5 inches the first summer. Unfortunately, the depletion of the ranks is constant and considerable and only about 20 per cent of the yearlings survive. The occasional one that lives for three years may be only 11 inches and still must face the giants of his selected abode.

Life has been hard for these little predators, so if you ever catch a small pike, look it over. If it has both the cheeks and gill cover scaled, if the snout is short and broad, and if it has light vertical bars rather than a chain-like pattern on its sides, return it to the water with a little pride. You haven't caught a runt, but one of the diminutive and rarely captured members of the voracious and glamorous pike family. These very close relatives of the mighty musky must not only keep up the family reputation, but also must do it the hard way—by proving a good small fish is equal to a good big fish.

SEPTEMBER—1963



Bass fishermen along the Allegheny had quite a few handieaps this season. Earlier the Allegheny River was murky, then the moss or algae started running and then the low and elear water had the bass boys trying to adapt to the changing conditions. Pressure has been light.

-District Warden CLARENCE W. SHEARER (Venango).

Heavy moss in the Allegheny River in my area disgusted quite a few bass fishermen but most are awaiting cooler weather. Dave Guthrie, Marienville, Pa., came up with a 47-inch, 31-pound muskellunge from Tionesta Dam, a good spot for muskies all season.

-District Worden NORMAN L. BLUM (Forest and Clarion).

An angler at Pymatuning showed me a double snelled hook with a few split shot on it and a short length of monofilament line. He had a channel catfish about 15 inches on his stringer. He said his hook had caught in the double snell of the other hook he exhibited and this hook was still in the fish's mouth, lost by another fisherman.

-District Warden RAYMOND HOOVER (Crawford).

A Centre County angler invested a little more than he had expected in a recent fishing excursion. While fishing for trout he started a cast and his wristwatch came loose and sailed into a deep hole. The watch, valued around \$70 could not be retrieved after several vain diving attempts in cold, cold water. If the remaining fish in that hole learn to tell time, it's going to be really tough to eateh them.

-District Warden PAUL ANTOLOSKY (Centre).

Young Bob Smith had gone to a nearby streams for minnows. He saw three very young anglers about seven or eight years old, trying to use one piece of equipment at the same time. All were positive they knew the answers as to how to catch fish, each trying to get his point across at the same instant. They finally worked it out for each to take a turn with the pole with much sideline coaching from the others. One youngster evidently knew how to catch fish for his method was to throw in the line, count to 60 and then yank! Evidently this wasn't the method because the next fella taking his turn counted to way past 60 and still caught nothing. When Smith saw them working under such handicap he rigged a line for each so they did not have to take turns.

-District Warden MILES D. WITT (Northampton & Bucks).

During the shad run in the Delaware River I received reports of two different shad that when caught had lamprey eels attached to their sides. I had never seen this but read of it in the Great Lakes. I fished for shad one evening and caught a buck shad with a lamprey attached. The eel was only nine inches in length but it had a neat hole in the side of the fish and didn't want to let go of his meal ticket. I placed the fish and his parasite in the bottom of the boat and it was about an hour and a half before it let go.

-District Warden JOSEPH E. BARTLEY (Pike).

Nice catches of bass have been reported from Canadohta Lake this senson by Special Fish Warden Alex Aversa. The lake was drawn down last fall and a dam built at the outlet. Because of this the weeds failed to grow along the shore this year due to root systems being exposed during eold winter, freezing them out. The fishermen now have a better chance of showing their hardware to the fish.

-District Warden NORMAN E. ELY (Erie).



LAKE JEAN muskellunge caught by Airman First Class Norman L. Merrill on a No. 1 mepps spinner with red bucktail. It was 35 inches long and weighed 934 pounds.

An added side note of interest comes from an eyewitness account of the landing of the fish by William Utt of Bloomsburg, Pa. Utt claims he and his son heard cries for help, looked out across the lake and saw the airman with his rod doubled under the boat. They went out taking a net to assist in the landing. The landing net was useless when they saw the size of the fish, but Utt grabbed the exhausted musky by the gills and hauled him aboard. Utt, who fishes the St. Lawrence River frequently declared if he hadn't seen the fish landed at Lake Jean he would never believe a fish of that size existed in the lake.

Merrill was soon joined by other boats with airmen who assisted in towing him back to shore all the while busy holding the subdued musky in the bottom of the boat. The lake is readily available to personnel of the Benton Air Force Station located within a mile of Lake Jean and fishing is probably a part of the recreation program there.

Buddies of Merrill insist this was only his second fishing trip, that he had only ONE LURE in his kit and this was the first legal fish of any species he had ever caught.

-District Worden JAMES F. YODER (Luzerne and E. Sullivan).

Streams were abnormally low this year and fishermen who took trout under these conditions had to use every trick in the book. Even white "T" shirts and shadows spooked them and most of the large trout were taken at night.

-District Worden KENNETH G. COREY (Warren).

Recently there was an unusual bit of activity on the upper Delaware River, south of the Delaware Water Gap. All over the surface of the river, wakes were seen, traveling downstream. No turning or playing, just one straight bee-line down river as far as the eye could follow. Investigation revealed the waves were caused by adult shad evidently on their way back to the sea. I noticed the fish were moving at about the same rate of speed and after leaving the vicinity I clocked them with my car. I found they were making headway at about 15 miles per hour. There appeared to be an endless run of them in both directions as far as you could see, running about 10 to 15 yards apart in an endless chain.

-District Worden MILES D. WITT (Northampton and Bucks).

Meadville Kids at Annual Fishing Derby

Over 400 persons attended the third consecutive Meadville Fishing Derby held at Keystone Ordnance Works pond recently. The event was sponsored by Meadville Area Recreation Commission with aid from the Pennsylvania Fish Commission and the permission of the Federal General Services Administration.

The girls were out there angling as earnestly as the boys although some of them squealed at putting bait on the hooks and removing the wriggling catches but the boys gallantly came to the rescue.

Bob Hughes of radio station WMGW handled the public address system, information was recorded by Ken P. Williams, Meadville Tribune managing editor and Chuck Anderson, Tribune sports writer. S. Carlyle Sheldon, northwest regional fish warden supervisor and Raymond L. Hoover, district fish warden, Pennsylvania Fish Commission helped with the judging.

RETIRED COMMISSION EMPLOYE



Roswell Smith

Roswell Smith, employed by the Pennsylvania Fish Commission on May 10, 1929, retired as Fish Culturist on May 31, 1963. Mr. Smith was born on June 4, 1898 at Ryot in Bedford Country and he has four children and eight grandchildren. He likes to fish, hunt and travel, owns and operates a small garage at Ryot, Pa., and expects to keep busy operating the garage.

Nothing in nature is accidental or unimportant.

Autumn has the girlish figure of summer, the gentle grace of maturity, the rich beauty of mellow sunlight and the voice of soft winds singing in the sky.

Education that includes some thought of our environment, for the cherishing of our wild places, should be the number one project of the human race.—Dr. Olaus J. Murie, "What the Wilderness Means to Me."

Typical vacation: Two weeks on the sands followed by 50 weeks on the rocks.



WRIGGLY WORM is o problem ta Susie Irwin, 5, derby contestant, but she grits her teeth and grimly opplies warm to hook.

-Meadville Tribune Photo



DERBY TOPPERS—Gearge N. Ott Memorial Fund prizes—rods and reels and flashlights—ga ta first and secand placers in six classifications at annual fishing derby recently. George Ott, seated, and William N. Ott, behind him, award prizes annually in memory of their father. Front row, left to right: Albert Shartle, secand place in 13-15 year class for boys; Anthony Feleppa, first in 9-12 year class and catcher of lorgest fish; Lynn Munna, secand in same divisian; Ron Riordon, first in 6-8 year boys' class; Roseanne Munna, first for girls, 6-8; Gearge Ott; Jim Singletan, secand in 6-8 year class for bays; Mike Petruola, tied for secand in bays' 9-12 year class; and Sherry Irwin, secand in girls' 6-8 year class. Back row: Harry Scatt, second in class far bays fram 13-15; William N. Ott; Caralyn Wagner, first far girls' 13-15 year class; and Connie Caputa, second in girls' 9-12. Deedee Tregley, second in girls' 13-15 graup, had left by time winners were announced.

-Meadville Tribune Photo

Courtesy is a key that unlocks many doors whose locks yield to it alone. For courtesy is welcome everywhere . . . along the stream, in the office, on the highways and in the home.

In fishing as in everything clse luck is always against the man who depends on it.

Angler Finds Lost Wallet in Grand Canyon \$2,000 Returned To Owner



Alex Kerr (right) returns wallet to Warren Keck.

WHEN Warren Keck of Wellsboro lost his wallet containing almost \$2,000 during a raft cruise down Grand Canyon recently he figured he would never see it again. The wallet, its contents intact, was returned to him by Alex Kerr, of Lansdowne, who found it while fishing Pine Creek.

Keck was on his way to deposit the money in the bank before participating in a raft cruise down Pine Creek with a troop of girl scouts and their leader, his wife, Alberta. After several business interruptions, Keck found himself late for the start of the cruise and decided the money would be safe in his pocket until the next day. Early Wednesday morning, on the last leg of the cruise, the wallet was missed. There was only one answer, it was in the bottom of Pine Creek, somewhere between Ansonia and Tiadaghton.

Edward McCarthy, sponsor of the Pine Creek cruises, organized a large searching party but without results. Shortly thereafter, Kerr found the wallet lodged between two stones, close to the bank and about midway down the canyon.

Kerr said he first thought the object to be a leather holder for trout flies, thrown away by some discouraged fisherman. When he opened the case he spotted several \$100 bills. Papers inside the wallet led the way to Keck and the wallet's return.

To prevent shot from slipping on your fishing line, place a rubber band inside the cut and close the split shot over the band and line. Trim excess rubber.

Ordinary auto body polish or wax on the contact edge of spinning reels makes for longer, smoother easts.

When casting is impossible, place your bait in a paper cup, attach to line, and float out. A light pull drops bait in water at desired spot.

Spent M2 flashbulbs make fine clear bobbers. They have good tie-in grooves and each bulb can support three split shot.

Mr. Gordon Trembley Chief Aquatie Biologist Benner Spring Fish Research Station Box 200-C Bellefoute, Pennsylvania

Dear Gordon:

The Fishing Derby at Brady's Run Lake, which was sponsored jointly by The Beaver County Conservation League and The Beaver County Recreation Department, was held last Saturday and to all concerned was highly successful.

Approximately two hundred "ardent" fishermen, thirteen years of age and under, were registered for the event. Over sixty fish were eaught ranging in size from a 15½-ineh sueker down to a 2½-ineh bluegill and a prize was awarded to each one of these. As an added attraction we drew two (2) numbers every hour and awarded a silver dollar to each participant whose registration number corresponded with those drawn from the box. We also had a Seuba Diving exhibition by Reseue Squadron #1 here in Beaver County. The only untoward incident that happened was when one of the canoes being used by an Explorer Scout Troop, which was used to patrol the lake as a safety factor, upset as they put out from shore. Nobody got hurt but they did have red faces and wet trunks.

All in all, Gordon, it turned out to be a very fine event and we are hoping to have a bigger and better event next year.

All of this, of eourse, would not have been possible had we not had excellent eo-operation from you and your office in supplying us a truckload of bluegills and eatfish. We of eourse had the usual fine eo-operation of Warden Cliff Iman who served as one of the judges and helped immensely all day long.

At this time I would like to extend the thanks of all those in our Conservation League to both you and Cliff for your work in this our initial try, and hope we may be able to work together as well next year.

Sineerely,

BEAVER COUNTY CONSERVATION LEAGUE Joseph H. Craig, President



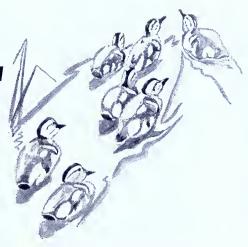
DOUBLE-MOUTHED CATFISH? . . . No, not quite . . . this catty probably suffered a severe wound in his chinny-chopper and then it healed, leaving the hole that looks like a second mouth. Owen Peterson of Harrisburg, Pa., caught the oddy in the Susquehanna River.

United Way planning helps the United Way dollar provide better service for more people. Give the United Way.

Trout, Unlimited

to Convene at

Allenberry



ROUT Unlimited's national board of review will comprise a panel on trout management at TU's national convention Sept. 6-8 at Allenberry resort near Bolling Springs, Pa.

It will be a highlight of a program that will be packed with discussions on trout, water problems, fishing and fly

tying.

Members of TU's board of review are Dr. Karl F. Lagler, chairman of the department of fisheries in the School of Natural Resources at the University of Michigan; Dr. Albert S. Hazzard, former assistant director of the Pennsylvania Fish Commission; Dr. Dwight A. Webster, professor of fishery biology at Cornell University; Dr. Paul R. Needham, professor of zoology at the University of California, and Prof. Carl E. Bond, an associate professor of fish and game management at Oregon State College.

The panel will be moderated by Chester S. Davis, chairman of the trout committee of the North Carolina

Wildlife Resources Commission.

A second panel, on trout and tourism, will be moderated by Charles K. Fox, author of "This Wonderful World of Trout," and president of the Harrisburg, Pa., Chapter of TU.

Members of the panel will include Roger Latham, outdoor editor of the Pittsburgh Press; Sam Slaymaker, a well known outdoor writer, and Dr. Alvin R. Grove, Jr., vice-president of the Pennsylvania Federation of Sportsmen's Clubs.

Registration for the meeting will be held in the afternoon of the first day, a Friday. That evening there will be a clambake on the banks of the Yellow Breeches. Afterward, Martin Bovey, nationally known conservationist and president of the Massachusetts Chapter of TU, will show some of his famous movies.

Highlights of the first full day, Saturday, will be the panels on trout and tourism and on trout management, a discussion of fishing for fun by O. L. Wallis, a National Park Service authority on the subject; the national membership meeting; a fly-casting clinic conducted by the famous and ambidextrous caster, Lefty Kreh.

The events Saturday will be capped by the annual banquet, at which a famous personality will be the speaker.

Of interest Sunday morning will be a discussion by Vincent C. Marinaro, author of "A Modern Dry Fly Code," on the history and tradition of angling and a talk by Ernest G. Schwiebert, Jr., author of "Matching the Hatch," on water problems.

In the afternoon there will be a fly-tying clinic conducted by Ed Shenk, Ed Koch, Norman Lightner and

Ross Trimmer.

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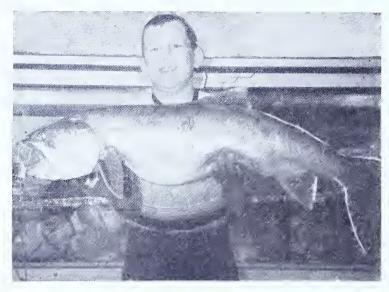
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A FISHERMAN'S DREAM came true when 10-year-old James Charters, Wilkes-Barre, landed this 35-inch, 16-pound lake trout on a silver spoon while trolling Harvey's Lake. It took Jimmy 35 minutes to land the fish without assistance.



DOUBLE TROUBLE for John Shields after hooking into these two big carp while fishing from the dock at Erie for bullheads. The fish were identical in size, both weighed 50 pounds.—Erie Times photo.



THIS MUSKIE weighing 16 pounds, 42 inches in length was caught by Bill Ott of Meadville, Pa., on May 21, 1963, at Conneaut Lake.



TROUT JACKPOT hit by Jimmy Dallas (left) and Joe Radecki while fishing 20-Mile Creek near Erie. Among the six rainbows, the largest one scaled six pounds and measured 24 inches.—Erie Times photo.



WOTTA FISH! . . . a 38-inch, 15-pound musky caught by Danny Lewis and his proud Dad, Samuel Lewis, while fishing between the ore boats and entrance to Marina at Erie. They bagged it on a "rapala" plug made in Sweden.—Photo courtesy of the Erie Times.



NICE WALLEYE CATCH taken in the "Narrows", a stretch of the Juniata River south of Lewistown, by Dick Hagan (left) and Robert Carolus. The largest walleye measured 25 inches and weighed five pounds, four ounces. The second largest was 23 inches, weighed four pounds, eight ounces. The other five fish averaged 19-20 inches. All were taken on a tiny river runt lure.



NIGHT-TIME BASS caught after dark on a jitterbug by Harold Conklin, Thompson, Pa., at Pages Pond, five miles out of New Milford, Pa. The largemouth was 21 inches long and weighed six pounds, two ounces.

MOVING?

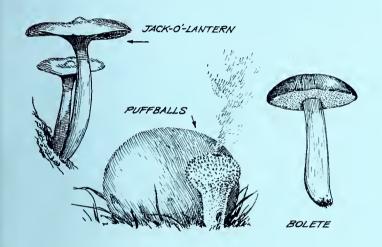
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Pennsylvania Fish Commission



A Monthly Feature For Young Anglers

Funny Fungi



AFTER an autumn shower you'll sometimes see many strange growths that seem to have popped out of the ground overnight or have appeared on stumps and logs almost as quickly. Some of them look like umbrellas, some like coral, some like funnels, others like shelves—there's no limit to their shapes and colors. These are fungi, or wild mushrooms, although not all of them resemble mushrooms we buy in the store.

While some mushrooms are good to eat others are deadly poisonous if eaten. Only an expert can tell the good ones from the harmful ones, so you should never be tempted to taste any of them. However, it is fun to learn to identify some of them and learn some of the interesting things about them.

One orange-yellow mushroom that grows on old stumps is called the jack-o'-lantern. You will learn why if you turn a few upside down in a completely dark room. When your eyes become accustomed to the darkness you will see that the gills (those fin-like parts beneath the cap) are glowing with a faint, ghostly light.

Another interesting mushroom is the puffball. Some puffballs are round and large as basketballs, others are smaller and shaped like inverted pears. Some are smooth, others are covered with tiny points. If you kick a ripe puffball a yellowish-brown cloud of dust will shoot out of the top. This "smoke" is composed of billions of spores, the seeds of the puffball.

Boletes are mushrooms with no gills beneath the cap.

Instead, the under surface of the cap is a mass of tiny, almost invisible holes. Several kinds have yellow or cream colored flesh, but you have to look quickly to see it. As soon as the cap is broken or cut the exposed surface immediately turns bright blue!

Making spore prints is fun. Cut the stems off a number of mushrooms of different kinds. Then place the caps, right side up, on squares of colored paper. Invert a bowl or cup over each cap to keep off any stray breezes. In a few hours the spores falling from the gills or pores will have formed a very pretty design on the paper.

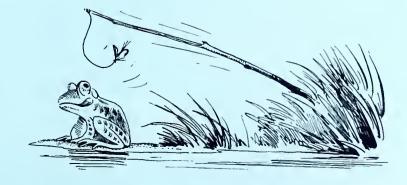
A Frogging We Will Go

AVE you ever eaten frog legs? Well, I suppose most of our girl readers have no interest in either killing or eating a frog, but for the benefit of you older fellows with more adventuresome appetites I'll tell you how to go about it.

First you must catch some frogs. Shooting them with a .22 rifle is the easy way, if you are old enough and properly supervised. The hard way is to sneak along a stream bank or pond shore and catch them by hand.

"Fishing" for frogs is the fun way. Attach a few feet of monofilament line to the end of an eight-foot pole. Old timers used a fish hook baited with nothing more than a little piece of red flannel, but a colorful trout fly will do just as well. Approach the frog quietly from behind and dangle the fly in front of his nose. Before you can say "Jug-o-rum" he'll leap up and inhale the fly.

Kill him with a whack over the head. When you have enough for a meal cut off their hind legs and skin them. Talk your mother into parboiling them, then dipping them into seasoned flour and frying to a golden crispness. I guarantee after the first taste you'll feel less badly about killing those poor frogs.





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OCTOBER, 1963



VOL. 32, NO. 10

GEORGE W. FORREST, Editor

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NOTICE: Subscriptions received and processed after the 10th of each month will begin with the second month following.

Project 70 Goes Before Voters November 5

Approval by people of Pennsylvania will provide \$70,000,000 to meet public demand for recreation, more open space in State's urban areas.

Fish Commission's allocated fund of \$5,000,000 would promote long range program to preserve public use fishing and boating areas.



BEAUTIFUL WATER formed by Letterkenny Reservoir Dam, Franklin County. In foreground is a boating access area built by the Pennsylvania Fish Commission. More access areas are needed elsewhere along our lakes and streams throughout Pennsylvania.

ROJECT 70, Pennsylvania's plan for developing and conserving the State's outdoor resources through the acquisition of open space and park lands, will be placed before Commonwealth voters on November 5. They will have the opportunity to vote in favor of the referendum, which will provide \$70,000,000 to meet the ever increasing demands for recreation and the need to provide attractive and scenic open space in the State's urban areas.

\$5,000,000 of this fund will be allocated for Fish Commission participation in the project.

"This will be a vital step in establishing a long range program to preserve for public use fishing and boating areas now threatened with obliteration by increasing private development. "It is imperative that Pennsylvania's citizens be acquainted with the need for their vote in favor of this important program which will provide funds for the acquisition of vital lands and waters needed to develop and improve fishing and boating facilities for the future," said Albert M. Day, executive director of the Fish Commission.

Day has been named by Governor William W. Scranton to serve on the Citizen's Committee for PROJECT 70.

PROJECT 70 requires an amendment to the Pennsylvania Constitution. It must by law be approved by two separately elected sessions of the General Assembly and then placed on the ballot for the approval of the State's voters. The 1962 and 1963 Legislatures approved PROJECT 70 by overwhelming votes. It is now up to the voters to make their decision.



FAIRVIEW ACCESS area on the Susquehanna River near Harrisburg, is a recent addition to the many similar areas installed by the Fish Cammissian. Bootmen and fishermen say they are a "must"!

LAKES AND PONDS, similar to this water of Duman's Dam, Cambria County, a project of the Fish Commission, give people living in congested papulated areas a better appartunity to enjoy the peaceful spart of angling and the autdoors.

PROJECT 70 contains the following proposals:

- 1. To ring our major cities with regional parks through the acquisition of park land in our urban counties thus giving them the recreational and scenie advantages which can spell prosperity in the midtwentieth century.
- 2. Recommends the cstablishment of three large Federal recreation areas in Pennsylvania—one on the Delaware River at Tocks Island above Stroudsburg, one on the Raystown Branch of the Juniata River below Huntingdon, and one on the upper Allegheny River at the site of the Allegheny Reservoir now under construction.
- 3. Vital fish and wildlife areas now threatened with obliteration by increasing private development would be preserved for public use.
- 4. Diversification of recreational opportunities in the State's non urban counties which will lay the foundation for a new year-round recreation industry in our mountain counties, making them a potential new American vacation land easily accessible by the Interstate Highway network.

Of the \$70,000,000, the Fish and Game Commissions each will receive \$5,000,000 for the acquisition of vital wildlife, fishing and boating areas. Fish Commission funds can be used in any part of the state.

\$40,000,000 would be used by the Department of Forests and Waters to acquire park lands and open space for future use. The expenditure of this money would be for land in Pennsylvania's 43 urban counties.

An additional \$20,000,000 would be used by the State as matching funds to local governmental bodies for the acquisition of park lands. This matching money would be available to any county, municipality, or township in Pennsylvania that raises funds for land acquisition.

The sprawl of our suburbs into the countryside is swallowing up thousands of acres of land annually. It is also forcing the price of land higher with each passing year. Clearly, those areas which will be needed for public use in future years grow increasingly expensive. The cost of acquiring such areas is lower now than it will ever be again. To purchase them now makes sound fiscal sense.

The availability of sites suitable for the creation of new recreational waters, and access by the public to existing waters poses a serious problem, especially near centers of heavy population.

The Fish Commission's program will guarantee access to many publicly-owned waters throughout the state. It



will reserve areas which lend themselves to the creation of lakes. It will preserve natural springs for future development of fish hatcheries and fishing streams. It will include the acquisition of sites for headwater impoundments to insure a source of water to augment streams during low flow periods; and, it will make possible the purchase of existing lakes that are in danger of going into private ownership and being forever lost to the public.

Following are the general classifications of projects which will be implemented by the Fish Commission in its participation in "PROJECT 70." The locations of these projects will not be restricted geographically. The locations of sites for acquisition and future development will be determined on the basis of both present and anticipated future needs for such improvements.

Cooperative Projects

The Fish Commission's plans will include an active part in the acquisition of lands for the construction of multipurpose dams in cooperation with the United States Department of Agriculture through its Soil Conservation Service under Federal P. L. 566.

In this program, it is the responsibility of the state agency or participating local groups to acquire title for all the lands needed. The Federal government assumes the major cost of actual construction of the structures.

Dam Sites

It is extremely important that all possible steps be taken to speed the acquisition of suitable sites for future dam construction. These areas must be reserved now for future public recreational use. These sites will produce many acres of recreational waters in areas where such facilities are nonexistent.

River Access Areas

The greatest water surface potential for recreational facilities existing in the Commonwealth is presented by the thirteen major rivers which wind through forty-eight counties. Although most of these waters belong to the Commonwealth, public access to them is sometimes non-existent for many miles. The acquisition and development of access sites would make available to the public many thousands of acres of excellent fishing and boating waters.

Lake Access Areas

Scattered throughout the Commonwealth there are a great many privately-owned lakes. Some of these, especially in the Northeast, are natural and some were created and are owned by individuals; others are parts of utility or municipal facilities. Many of these lakes lend themselves well to such multiple uses as fishing and boating. Far too many are not available to the public because they are surrounded by cottages and other private property. It often is extremely difficult to purchase such access with the agreement that the general public shall have full and free use of the lake for recreational purposes.

Headwater Impoundments

Headwater impoundments, although designed primarily for low flow augmentation of the stream, will have many other benefits. Reduction of the surge of water which normally tumbles downstream during floods will provide protection to the banks and help prevent soil erosion. Many other kinds of stream improvement devices, which will help to improve fishing conditions can best be installed on streams with headwater impoundments. The ponds will also be stocked with fingerling trout in early spring and the fish, grown without cost on natural food, will drain down with the water to supplement the wild stock below.

The streams immediately below the impounding structure should be available for public use for a minimum of two miles, whether it be on land now owned by the Commonwealth or land that can be acquired by easement or fee purchase. In any event, the stream use by the public is as important as the creation of the dam. The primary purpose in the program is to provide public usage of a stream developed to its optimum.



HEADWATER IMPOUNDMENTS have many benefits to provide flood control, prevent erosion and improve fishing.

Existing Lakes

The aequisition of existing lakes is of prime importance for several reasons. They generally can be purchased at less cost than a similar lake acreage can be created, and at the same time, they are immediately available for publicuse.

There are many lakes that can be acquired if the money is available to accomplish the purchase.

Acquisition of Natural Springs

Occasionally an opportunity arises to acquire a natural spring, but it generally comes at a time when funds are not available to consummate settlement. This has been the case in the past. Provision should now be made to acquire these natural resources for future public utilization and enjoyment.

In acquiring these areas, due consideration must be given to purchase of sufficient land around them for future development, whether it be for a hatchery or for general recreational purposes. Similarly, several miles of the stream below the spring should be purchased to guarantee full use of the waters for fishing research or other legitimate public use.

BRADY'S LAKE, Monroe County, is typical of "drive-in" access to lakes, ponds and streams of Pennsylvania. Convenient parking, easy boat launching plus better fishing is the aim of the Fish Commission in building these areas.



A Look At The

INFLATABLE DAM

A relatively new device planned for installation in the Susquehanna River near Sunbury and designed to provide a greater fishing and water recreational area in central Pennsylvania.

By Ted Fenstermacher



A NINE-FOOT-HIGH, 1,900-foot-long inflatable dam, planned for the Susquehanna River, at Sunbury, promises to become the greatest development in providing a fishing area that Pennsylvania has ever known. Someday similar dams, with flood-proof features and costing an estimated one-tenth of the conventional dams, may form fishing pools of all sizes on creeks and rivers throughout the Commonwealth.

The dam planned for Sunbury, with preliminary designs now complete, was approved by Governor Scranton. The estimated cost of the structure is \$920,000. It will be financed out of receipts from oil and gas leases to private industry on state-owned land. Governor Scranton said receipts probably will be sufficient next year to support the project. Meantime, the Department of Forests and Waters is to proceed with final plans for the structure.

Members of the River Dam Committee, of the Central Susquehanna Valley Chamber of Commerce, raised \$15,000 for the preliminary plans and have secured necessary land clearances. All preliminary plans have been completed by Fabridam engineers of Firestone Tire & Rubber Co.

Sunbury's dam is slated for a point three miles below the confluence of the North Branch and West Branch of the Susquehanna. It will form a pool reaching 10 miles up the West Branch, to a point near Lewisburg, and six miles up the North Branch, to a point half-way to Danville.

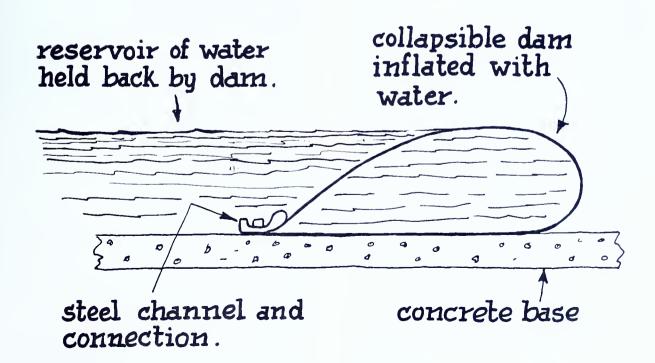
Fishermen of a wide area are showing a tremendous interest in the dam that promises a "Y" shaped "lake" of such proportions. It is encouraging to note that those who have planned the dam have provided for fish ladders.

The first inflatable dam has been in use, in California, since 1957. Eight such dams are now in use and many



MILLIONS OF GALLONS of water on the upper side of a fabric dam are abserved as a Las Angeles employe walks acrass the tap of the dam. A much larger dam of this type, almost 2,000 feet lang and nine feet high, is planned for the Susquehanna River, at Sunbury. It will provide a fishing and water recreational area reaching almost to Lewisburg on the West Branch and half way to Danville on the North Branch.

Side View of Fabric Dam





FABRIC DAMS can be adapted to all types of streams, large or small. Anglers of Pennsylvania are watching the dam project progress with great interest.



GEN. NORMAN M. LACK, executive vice president of the Water Research Foundation for the Delaware River Basin, center, shows a water color he made of the proposed Sunbury dam to Basse Beck, left, and Homer K. Smith.

more are being built. One now underway is at Hong Kong where the Tai Po Tau River will have its waters conserved. One is also being considered for on the Juniata River at Millerstown. That proposed dam would be nine foot high and 422 foot long. It also would be for recreational purposes.

One of those now being used is a six foot high, 100 foot long one, installed in 1960 on Turtle Creek, Pittsburgh, to raise water head for the plant cooling water intake at the Westinghouse Electric Corp. plant, and to provide flood protection.

The inflatable-deflatable dam, at first mention, admittedly sounds impractical to many. Its remarkable advantages and practicality have, however, been conclusively proved. The tremendous strength of laminated neoprene and nylon, coupled with the ingenious although simple "teardrop" design will, when investigated, convince even the most skeptical.

Fabridams can give absolute, foolproof and even automatic control over rivers.

They can be used at places where ordinary dams cannot be permitted, due to flood danger. Sunbury is one of these. District Army Engineers, at Baltimore, told the local committee a conventional dam could not be erected at Sunbury due to flood danger. There would be no way of allowing enough of the flood water to pass, in emergencies.

Fabridams, by contrast, can be quickly deflated. They are inflated principally with water, along with air at the top. It is only necessary to allow this water and air to flow out and the dam collapses. It can be "re-erected" by pumping water and air back into the sections. Automatic devices are available, if desired, that start siphons

when flood waters come and the dam collapses automatically.

A further advantage is that ice can also be controlled. If ice begins to be dangerously thick, such a dam can be partially deflated. The ice then breaks up and floats away, preventing possible later ice jams.

Common questions by those first hearing of fabric dams are, "What if a house or tree, floating in a flood, hit the dam?" The answer is that the dam would, at flood times, be partially deflated but, even if it were not, the laminated material is so amazingly strong that any damage would be almost impossible.

Some ask, "What if a thoughtless hunter should shoot into the dam?" Pressure in such dams, 1.9 lb., is so low that bullet holes would have practically no affect. Furthermore, it is extremely simple to repair such a dam.

Others ask, "How about the corrosive action of sand or mud in the river?" Engineers explain that the material used in the fabric are standard protective items for internal parts of sand blasting and grit blasting equipment. Strength of the fabric is shown in the fact that a one-inch wide strip will support 3,200 lbs.

Three railroad carloads of the laminated material will be needed for the Sunbury dam. The dam will be made up of sections of laminated material, 200 and 300 feet in length. They will be separated by concrete abutments, anchored to bedrock. A strip of concrete, also anchored with steel to the bedrock, will extend entirely across the bottom of the river. It will be from 18 to 30 inches thick and from 15 to 20 feet wide.

The laminated sections, of teardrop shape when viewed from the end, will be bolted to the steel, one-inch bolts, 18 inches apart and anchored in the concrete and bedrock. Long strips of special steel will hold the fabric to the



MINIATURE EDITION of the type dam planned for the Susquehanna at Sunbury in Turtle Creek beside the Westinghause Electric plant at Pittsburgh. Back-up water, to a depth of about six feet existed due to high water on the Manangahela River into which the creek flows when this phata was taken.



SIX FOOT HIGH FABRIC DAM, 190 feet in width in Hawaii, installed atap an ald canventianal dam, it has made it passible ta pravide another six feet of depth for the Waialua Agricultural Ca. reservair. This is another way in which such dams can be utilized.

concrete base. Such steel and fabric are not affected by acid.

In the Sunbury dam the teardrop sections will be filled to more than seven feet with water, with the remainder filled with air. Water in the sections, the steel and concrete and the tremendous downward pressure of the river on the upper side of the teardrop will all help hold the dam securely in place.

When a group of civic leaders, headed by Homer Smith as chairman, first took action to get a dam for the Sunbury section they conferred with Secretary Maurice K. Goddard, of the Department of Forests and Waters. Chairman Smith says Secretary Goddard spoke of the immense cost of a conventional dam and of the flood problem, but said a fabric dam, which might overcome both problems, had been developed. He suggested the committee contact Gen. Norman M. Lack, executive vice-president of the Water Research Foundation for the Delaware River Basin, who was familiar with the fabric dams.

Secretary Goddard has been extremely helpful in regard to the dam, according to Smith and to Basse Beck, another Sunbury civic leader. The Secretary told the committee Sunbury would be an ideal spot for a pilot dam and suggested the \$15,000 needed for the plans be raised by the group. He also suggested they get land clearances. Both have been done by the group.

It is not surprising that a Chamber of Commerce should be carrying the ball for a dam that would provide a great expanse for fishing. It would be of great economic aid. It is also not surprising that most of those on the active C of C committee are avid fishermen.

Along with Chairman Smith, head of WKOK and WKOK-FM, are Basse Beck, general manager of the Sunbury Daily Item, Mayor Lester P. Shissler, Edward Gill,

Al Wolfe, Robert Scullin, Fred Hoffman, Dr. Guy Smith, Edward Freck, Robert Bell, Paul Miller, Sidney Apfelbaum, Rep. Adam T. Bower, Charles Duffy, Pierce Coryell, all of the Sunbury, Northumberland and Selinsgrove area, and Robert Brouse, Lewisburg.

The new type dam, estimated by engineers to cost about one-tenth of the cost of conventional dams, will, they say, last for at least 20 years in regard to the fabric. If fabric sections should then need to be replaced it could be done without difficulty. The concrete base and abutments would already be in place.

The unique dams came about because Norman M. Imbertson, chief engineer of the Water Plant Operation Division of the City of Los Angeles, had a serious problem. He was faced with a desperate need for conserving water at times of heavy rains. Temporary wooden dams were placed on the Los Angeles River to divert the water into giant, underground storage areas. Unfortunately, the wooden dams were often swept away by floods and subsequent rains were lost before the dams could be replaced.

Imbertson came up with the idea of a dam that would temporarily collapse, at flood time, but which could be quickly reinflated to catch subsequent rains. Five such fabric dams are now used in Water Department operations in California. All are highly successful.

An all-important feature of these dams, for anglers, is that they can be placed in small, medium or large streams. Their use, in providing bodies of water for fishing and for other recreational purposes, is practically unlimited. The possible flood damage problems that make dams impractical at so many places can be overcome with fabric dams.

Anglers are watching—with interest and anticipation—developments at Sunbury.

Sixty Years Ago . . .

BELLEFONTE FISH HATCHERY OPENED

Accounts from the newspapers October 26, 1903.

BELLEFONTE, PA., October 26, 1903-Philadelphia North American—Pennsylvania will soon be stocking its waters with young trout, bass and bullfrogs from the new Bellefonte State Fish Hatchery, which was formally opened for business this evening.

In the presence of a number of State officials and sportsmen the first consignment of fish eggs from the Allentown hatchery was deposited in the tanks of the new establishment. Brief speeches were made by Economic Zoologist H. A. Surface, Fish Commissioner W. E. Meehan, Judge John G. Love, Colonel Wilbur F. Reeder, Superintendent N. R. Buller, who built the plant, and local sportsmen.

The Bellefonte hatchery, it is expected, will eventually be the best plant in the state, though it will take a couple of years to fully complete it as now planned out. The main building for the hatching of trout fry is 100 x 30 feet and capable of holding 105 sets of hatching troughs. Surrounding it will be twenty-five concrete pools for raising the fry till they are large enough for shipment.

The springs from which the water supply is obtained give forth a flow of 8000 gallons per minute, the water

having a mean temperature of 50 degrees.

The hatchery grounds now embrace about twenty acres, situated around the railroad at Pleasant Gap, on the L. and T. Railroad. Half of the plot will be utilized for the hatching of trout, with a capacity of from 12,000,000 to 15,000,000 fry a year. The remainder of the ground will be used for the hatching of bass, gold fish and frogs.

Ponds for the habitation of the trout breeders and for bass hatching will be constructed all over the plot, which will be laid out with walks and drives and planted with

shade trees.

The trout building was constructed under the supervision of N. R. Buller, who came here from Corry to take charge.

It is expected that by the first of the year the entire stock of the Allentown hatchery will have been transferred here. The Allentown plant will be dismantled.

BELLEFONTE, PA., October 26, 1903-Philadelphia Inquirer-The Bellefonte fish hatchery, located at one of the most picturesque points in Centre County, four miles southwest of this place, was formally opened today with appropriate exercises. Hundreds were in attendance. The State College Cadet Band was present and rendered elegant music for the occasion. Addresses were made by Judge John G. Love, Colonel W. F. Reeder and Professor H. A. Surface, State Zoologist, all of whom spoke of the great benefits that will be derived by having the fishery located here.

W. E. Mechan, State Commissioner of Fisheries, explained the aim of the Department of Fisheries at this station. He said this hatchery, when completed, will be the largest and the finest in this country. After the addresses the station was thrown open for inspection.

The hatching house and the several large ponds are supplied from a number of large springs in the vicinity, the flow of water being 8000 gallons a minute. By the first of January the entire hatchery at Allentown will be removed here, and from here all the streams of the State

will be supplied.

Last Saturday Fish Commissioner Meehan purchased from Sidney Hoy fifteen additional acres of land, together with his farm house and other buildings, for \$2600, all of which will be utilized in erecting additional buildings and creating ponds for the raising of bass, frogs and goldfish, the latter to be one of the specialties of the hatchery. The goldfish will be sent to the public schools of the State.

The whole enterprise is now under the management of Nathan R. Buller, of Lancaster county, an expert in the hatchery business, but the station, when completed, will be under the direction of John P. Creverling, a specialist in trout hatching. About twelve million trout will be distributed from this station annually to streams of the State.



Completed Bellefonte Hatchery as it appeared in 1904.

REPORT OF THE BELLEFONTE HATCHERY

-1904 -

HOWARD M. BULLER, Superintendent

To the Hon. W. E. Meehan, Commissioner of Fisheries: Dear Sir: I beg herewith to submit my first report as Superintendent of the Bellefonte Hatchery from the first of June to the first of December, 1904. On the first named date I received my appointment from you as Superintendent, having previously served your Department and the Fish Commission as an assistant, first at Allentown and then at Bellefonte, for a period of two years and a half.

When I took eharge of the hatchery the trout fry for 1904 had all been shipped and the troughs empty. In the nursery ponds attached to the house there were about 21,000 fry which had been reserved for breeding purposes, both for this hatchery and the Wayne county hatchery. In addition to the eleven nursery ponds just spoken of, there was one large pond between the hatching house and the spring, 150 feet long and 40 feet wide, and a partially completed pond a little below the hatching house and a little to the left, 154 feet long and 40 feet wide. I immediately began the completion of this pond and then believing it too large, divided it into four ponds, each 77 feet long and 22 feet wide. From time to time I built other breeder and fry ponds, until at the close of the year there was a total of 18 ponds, five of which may only be called temporary, although they can be used for an indefinite period of time. In addition to the eighteen mentioned, there are the nursery ponds which are large enough at a pinch to carry breeder fish in small numbers until the summer, making a grand total of ponds at the Bellefonte Hatchery twenty-nine.

The nursery ponds are fitted out with automatic feeders, so that when fry are placed therein, it is not necessary for the men to feed them, as the food is being supplied constantly by the automatic jars. The general ponds are constructed of concrete and the walls of ten have concrete

sides and ends and one has two ends and the others have earthen sides with either concrete or board ends.

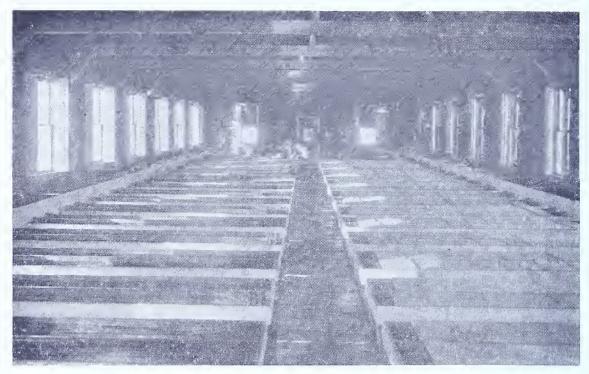
In these ponds there were at the close of the year 8,620 breeder fish, 7,620 of which are brook trout and 1,000 California trout. In addition there are over 12,000 fingerlings held for breeding purposes. With those already in the ponds they should yield a good crop of eggs next fall.

Besides the brook trout, there are 65 plain and fantail gold fish, which should breed next summer. Had it not been for the fact that I had no established pond until autumn they would have bred last August. Among the fish at the hatchery when I took charge there were 1,000 Atlantic salmon fry, but these, together with 3,000 fingerling trout, were shipped on your order in September to the Wayne County Hatchery to assist in stocking the ponds in that place with breeding fish.

When I took charge the only completed pond and the hatching house were supplied from the hatchery and Sugard springs, and the four ponds which I completed below the hatching house as well as the five temporary ponds are to be supplied from that source, also the eleven nursery ponds. A small spring near the house I utilized for the gold fish pond.

I opened and developed a large spring in a swampy piece of ground above the hatching spring and built around it an octagonal cement wall. The waters from this spring I used to supply three ponds. The remaining ponds receive their supply from the raceway leased from S. H. Hoy, running from Logan Branch Run.

While on the question of water supply for the hatchery, I would respectfully urge you to take the earliest opportunity of increasing it from the Logan Brauch Run through the raceway, and if possible from one of the springs above the head of the raceway. Although there is usually an



Series of hatching troughs in the Bellefonte Hatchery of 1904.

abundant supply of water from the hatchery spring and the Sugard spring, there are times when both are insufficient. This was the case last fall. Everywhere springs fell off. At one time the water supply became so low from the hatchery spring that I was forced to remove the large trout from the pond between the hatching house and spring and utilize all the water in the hatchery. In fact, even at the present time, there should be more water flowing through the troughs than is available.

The twelve thousand fingerlings now in the ponds will next fall need additional quarters. Owing to the shortage of the water supply, I lost at least one million trout eggs this fall, the most of which would undoubtedly have hatched had it not been for the reason I have given. Since then I have experienced a shortage of water with a resultant loss of at least three hundred thousand trout fry, nearly all during the sac stage. There is water enough in Logan Branch Run and in the springs above to run half a dozen hatcheries of the capacity of Bellefonte, and with the raceway, which you with great foresight leased from Mr. Hoy, in full operation, there will be abundant water for all our needs.

Most of the time during the summer months was naturally devoted to the building of ponds, but whenever I had a little spare time I devoted it to beautify the place. In around the group of ponds between the hatching house and the railroad I seeded with grass and planted with trees presented to the hatchery by Mr. John Fisher, of Bellefonte, or taken from other parts of the property. I also planted along the front and side of the dwelling house and sodded it. I built a new fence around the barnyard. Also raised the stable a foot and equipped it with stalls for horses and cemented the walls. I concreted the cellar of the house and concreted the floor. I also built a shed for the storage of wagons and shipping cans. I also ran a water pipe from the house to the spring and made a number of other minor improvements.

I regret to say that seven shipping cans were not returned by the people who received them with fish and all efforts to get them back have failed. I also completed

the car barn. The car was returned to the barn from Corry in December, it having been employed during the summer in conveying fish from the Corry Hatchery to the World's Fair in St. Louis, and in taking fish from the Erie and Corry Hatcheries to the Hatchery in Wayne county. It was returned to the barn in good condition. There were several tanks missing from the car, but my brother William Buller, Superintendent of the Corry Station, told me that with your permission he had retained them at his hatchery for the purpose of using them for holding ripe trout, or the eggs which were ready to be taken.

The Hatchery at Bellefonte has proved to be a source of great attraction to the people living in the neighborhood. The railroad station on the hatchery grounds and the fine highway leading to Bellefonte have afforded fine opportunities for scores of people to satisfy their curiosity to visit the hatchery. From the first day of May until the close of the season, 2,792 people registered, and that is probably less than one-half the number who have actually been to the hatchery within the period named, for many came to the grounds without signing the visitors book. While by far the greater number of visitors were Pennsylvanians, there were many from other states. There was one from Tokyo, Japan, two from Russia, one from Dawson City, Klondike, and one from London, England. Some from other states named as residences of the visitors were Indiana, Ohio, Illinois, New York, California, Texas, New Jersey and Tennessee. It is safe to say that at least 5,000 people have visited the Bellefonte Hatchery during the last six months. It is noteworthy that as the hatchery has developed by the increase of the number of ponds and breeding fish and as it becomes better known the number of visitors have increased.

On the 19th of November, Governor Samuel W. Pennypacker with Mrs. Pennypacker, paid an official visit to the hatchery with yourself and Fishery Commissioner Charles L. Miller, of Altoona. The Governor inspected the hatchery minutely and was shown the process of taking and fertilizing trout eggs, filling the trays and placing the

eggs in the troughs. In fact the whole process of the early stages of the hatching, including the cleaning of the eggs was shown him. The Governor expressed himself as well pleased with the condition of the hatchery and dined in the hatchery dwelling.

I have been bothered a great deal by kingfishers and house rats, these two enemies of the fish hatcheries fairly swarming around the place. It seems to me that all the kingfishers for miles around gathered about the hatchery. I have killed as many as four and five kingfishers in one day. I know of few birds in this neighborhood that are as destructive to the small trout as the kingfisher. A good healthy kingfisher will certainly get away with at least 100 trout in a day. Taking his size into consideration he can do more damage in a hatchery pond than a crane. He is only matched in my experience at other hatcheries by the night heron. The bittern, herons and cranes are scarce here as I have scarcely seen one-half dozen of these birds since I have had charge of the hatchery. The house rat has caused me a great deal of trouble. They seek the ponds and have caught a great many fish. Few people realize what expert fishermen the house rats are. They have sought the hatchery grounds in such numbers that in one day we caught twenty in traps. Altogether we have caught in the neighborhood of one hundred. Fortunately I have been able to keep the pests from the trout eggs, of which they are passionately fond. Mr. Creveling informed me that while he was superintendent at the hatchery at Allentown he lost large numbers of brown trout, some California trout and a few brook trout through the lightning. I am sorry to say that I have lost quite a number of brook trout from the hatchery from the same cause. During one storm I lost 37, and during another an even two dozen. On each occasion it was the largest trout which were killed, and most of these were females, and in none of the storms did the lightning strike the water.

On one occasion the lightning, which killed the fish, struck a tree on a hill about about four hundred yards from the hatchery. I do not know where the lightning struck on the other occasion, but it was I believe still further away. The fish that were killed were all fish that were resting on the bottom or near the bottom, and few of these were killed outright. They seemed to be stunned or paralyzed. Some died within an hour, and some lived nearly a week. Some of them would lie on their sides, swimming irregularly in that manner, while others would lie motionless or nearly so on the bottom. I believe you gave a good explanation of the causes of being killed by lightning in one of the annual reports of the Fish Commission, I think about 1898. If I remember rightly you said then that in the cases where the fish were struck, the fish were near a stone or touching a stone at the moment the lightning struck the ground near the pond and then completed the circuit and it was for that reason that the fish that were swimming free in the pond were unharmed. Under those circumstances it was not strange that the greater number of the fish that Mr. Creveling lost in that manner were brown trout, because that fish has a habit of resting on the bottom of the pond, but brook trout when in full vigor never rest on the bottom, but swim free. As I have noted, nearly all those which were killed by lightning during the fall were old fish, and when brook trout reach a certain age, that is to say have passed the prime of life, they become sluggish and follow the example of the brown trout and rest quietly on the bottom.



OCTOBER—1963

The Year the Little Lehig



LITTLE LEHIGH as it normally appears near the Fish Hatchery, is one of the finest trout streams in this section of the state.

By CHARLES H. NEHF

Allentown Call-Chronicle Outdoor Editor

Call-Chronicle Photographs

THE Upper Little Lehigh, rated as one of the finest trout streams in the east, is . . . at the moment of writing . . . BONE DRY! There is no water in many sections which formerly provided top brownie fishing . . . almost unbelievable, but true.

This sad and shameful scene could be a forerunner of things to come unless the problem is tackled with some serious thinking. Trout fishing, while important to anglers, is only secondary in this matter. The fact that the City of Allentown relies upon the Little Lehigh for 50 per cent of its water supply is of prime consideration at this point.

As far as nature is concerned it is extremely obvious the Lehigh Valley area is in the throes of a serious drought. While many sections of the country, including the normally dry prairie states, are having unusual heavy rainfall we are below normal.

The prolonged drought for the Lehigh Valley means that less water fell to penetrate the ground, consequently lowering the natural water table established by nature herself. It is quite obvious that little can be done to alter this unusual natural condition at this time. Streams in other sections of the effected area are low, but few with the reputation of the Little Lehigh have suffered as badly.



BOYS HUNTING salamanders under the rocks of the dry stream bed where a little moisture still existed

Vent Dry.. 10 miles of it!



'N DRY

DRY LITTLE LEHIGH, over a 10-mile stretch above Swoyer's Mill downstream to where the Swabia Creek enters just west of Laudenslager's Mill about a half mile north of the Brookside Country Club. District Fish Warden Norman Sickles declared only sound conservation practices could get water back into the stream.



DEAD FINGERLINGS in the vicinity of Swoyer's Mill in a stream bed that shows only slight traces of moisture. With all aquatic life destroyed it may take many years before the Little Lehigh can come back.

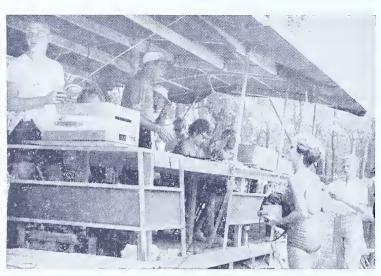


BONE DRY, the Little Lehigh is shown at Swoyer's Mill bridge. Most of the landowners along the stream now realize they must establish a sound watershed management program to prevent further debacles such as this.



Boating with

Robert G. Miller



JERRIE WIKTOR, club secretary, discusses results with one of the judges in the officials' stand, a floating patio. Serving in an official capacity were Milt Nash, of the AWSA, as chief judge; Jim Sylvester, president of the Eastern Region, ASWA; Carol Kline, club treasurer; and Charley Johnson, senior judge.



CHECKING THE LINE-UP on a large blackboard are, left to right: Roger Teeter, Milwaukee, Wisc.; Mary L. Clark, Scranton; and John Lee, Brookfield, N. H.

THIS past summer the Reading Water Skiers Inc. sponsored its first annual Mid-Eastern Water Ski championships on the Schuylkill River and it turned out to be quite a successful and interesting weekend.

There were plenty of entries, perhaps more than anticipated for the first year, and the water and weather conditions were ideal. No one minded an occasional ducking although it did cost them points in the competition.

Since Sunday is a regular working day, I drove over there on Saturday and found the shoreline lined with spectators and contestants—none of whom apparently had any trouble finding the area. I strayed off the beaten path, wound up much farther upstream, and spent at least half an hour touring the county.

This year's initial event, and all future meets, took place at the Department of Forests and Waters launching ramp located about a mile north of the airport, off Rt. 183. All you had to do was make a right turn off Rt. 183, follow the flags and you were there.

Staging an event of this kind meant a lot of planning and hard work. In fact, members of the sponsoring organization actually began laying the ground work for the American Water Ski Assn. sanctioned meet in September, 1962. Consequently it was quite encouraging when the entry list went over the 100 mark on the opening day.

Members started several days in advance hauling in bleacher seats from a Reading area stadium for the spectators, laid out the course in cooperation with the Pennsylvania Fish Commission to conform with AWSA requirements, set up necessary safety measures for the skiers, which included a pick-up boat and first aid facilities in the event of an accident; and provided a walkie-talkie network for instant communications from one end of the course to the other including the pilot of the tow boat.

Individual contestants of all ages, and team representatives, came from all over the eastern part of the country representing Ohio, the New England states, Washington, D. C., Maryland, Delaware, Florida and Virginia as well as Pennsylvania.

The youngest contestant, Diane Ackerman, who was eleven years old on July 21, came all the way from Springfield, Va., to take a first place in the junior girls' trick skiing classification on the opening day.

Fifty-seven year old Bill Fisher, Woodbridge, Va., was the oldest contestant. Reported to be a capable teacher of the art of water skiing, Bill served as one of the judges and also participated in the senior men's trick competition.

To conform with normal tournament competition, the meet was divided into three events: slalom, jumping and trick riding. There were five classes: men's, women's, junior boys', junior girls' (under 17) and senior men's or veteran's class (over 35 years of age).

Some 60 trophies were provided by the club and the top winners went on to compete in the Eastern Regionals in Maryland.

Entrants and spectators were provided with programs, showing the events slated for each day, which also contained some valuable "safety first on the water" hints for tow boat operators. They included:

BOAT DRIVERS DO:

Have an observer to watch water skier.



WALKIE TALKIE OPERATOR Charles Johnston serving as a senior judge, on the tow boat receives instructions from Joe Wiktor at the judges' stand.





AN OBSERVER DEMONSTRATES the straightedges and graphs used to measure distances during the jumping events.



TERRY MESSNER, 229 N. 13th St., Reading, displays the women's overall trophy given to the top point scorer in that division.



DON McWILLIAMS, 2211 Highland Ave., Mt. Penn, looking as though he just won it, displays the men's overall trophy. Don served as one of the show officials.

Return quickly to protect fallen skier—he is helpless in the water against oncoming boat traffic and is your primary responsibility.

Drive according to the skier's ability—avoid sharp turns.

Use common sense when driving for waterskiing.

BOAT DRIVERS DON'T.

BOAT DRIVERS DON'T:

Ride the gunnel or the back of the seat while driving for skiing, or allow your passengers to ride on the gunnel or back of the seat.

Increase speed when bringing in a skier for a landing. Tow skiers in congested areas—particularly swimming areas.

Heading the Reading Water Skiers Inc. is Jim Mandolos, president, who a few weeks later joined the exclusive Century Club when he made jumps of 101 and 107 feet to take the first place trophy in the Upper Chesapeake Bay Invitational Water Ski tournament at Elkton, Md.

Dave Miller, Reading, is vice president, Jerrie Wiktor, secretary, and Carol Kline, treasurer.

Read Owner's Manual After Buying Motor

An outboard motor is a quality piece of equipment, engineered so that, with reasonable care, it will give the owner a maximum of boating pleasure. Purchasers of new outboard motors should take the time to spend a few minutes going over the instructions in the owner's manual which accompanies each new motor.

This manual gives complete specifications on the motor, information on installation and operation of the engine, plus a list of check points in case minor operating difficulties are encountered. There is also information on the "Rules of the Road," buoyage systems and accessory equipment which will add to the owner's boating pleasure.

Don't Use Boat as Storage Bin

While your boat is laid up for winter, do not use it as a storage bin for heavy equipment. This can cause the bottom to become distorted, say the Evinrude engineers. They also suggest that trailer tie-downs be released while the boat is in storage.

COAST GUARD COMMANDER CHOSEN NEW BOATING ASSISTANT



Edward R. Tharp

DWARD R. THARP, of Shamokin, Northumberland County, has been appointed by the Pennsylvania Fish Commission as assistant executive director in charge of the watercraft safety division.

Tharp is retiring as a commander in the United States Coast Guard, will assume his new duties about Oetober 14.

This position was authorized by the Legislature in 1959. It was not filled by the Commission pending the outcome of new legislation which has been under eonsideration for the past six years.

The announcement of Tharp's appointment was made immediately following the signing of House Bill 889 by Governor Seranton. This bill also has been approved as conforming to the Federal Boating Act of 1958 by Rear Admiral O. C. Rohnke, Chief, Office of Merchant Marine Safety, U. S. Coast Guard.

"We have selected a man we believe to be eminently qualified for this position," said Albert M. Day, executive director of the Commission. "He is a native of Pennsylvania and has twenty years of experience in matters pertaining to boating. Since the passage of the Federal Bonner Act, he has been Coast Guard-State Boat Liaison Officer and in this capacity has worked with all of the states in the preparation of their respective boating laws," Day said.

The boating director will work closely with the inereasing number of Pennsylvania boaters on matters perEDWARD R. THARP, SHAMOKIN, TO HEAD FISH COMMISSION'S WATERCRAFT SAFETY DIVISION

Boating Director Will Work
Closely With Pennsylvania
Boatmen in Safety, Education
Enforcement and Improved
Boating Facilities

taining to safety, education, enforcement and improved boating facilities.

Following the announcement of Tharp's appointment, the Board of Directors of the Pennsylvania Pleasure Boat Association and the Pennsylvania Federation of Sportsmen's Clubs passed resolutions eommending and eongratulating the Fish Commission on the wise selection of Commander Tharp as Assistant Executive Director in charge of the Water Safety Division of the Commission.

While with the Coast Guard, Tharp was responsible for writing the "Recreational Boating Guide," a book intended to aequaint recreational boatmen with the requirements of the various Federal boating laws and to provide them with some basic guide lines for safe and enjoyable operation. He was also responsible for the revision of numerous marine easualty and subpoena forms. He lectured on marine casualty and boating aecident investigation procedures at Coast Guard Marine Safety Indoctrination School. He was responsible for the review of boating accidents and the preparation of statistical tabulations of boating aecidents and safety engineering studies for promoting boating safety, publishing "Recreational Boating in United States" and lecturing to boating groups.

During World War II, Tharp was assigned to the attack transport Samuel Chase and served in various capacities during this period. He served in both the Atlantic and Paeific theatres and participated in three invasions—Salerno, Southern France and Normandy. He was awarded the Bronze Star as a result of heroic action in the invasion of Normandy.

Tharp graduated from Shamokin High School in 1937. He attended North Carolina State College and graduated from the U. S. Coast Guard Academy with a B.S. Degree in June, 1943. He is also a graduate of the Coast Guard Merchant Marine Indoctrination School and the U. S. Navy School of Justice. He is married and the father of two ehildren.

Lake Winola Water Carnival Highlights Boating Season

A total of 26 floats and 209 displays highlighted the Annual Lake Winola Water Carnival. The variety of floats were colorful and showed much planning and imagination; judges had difficulty selecting the winners. Co-chairmen of the event were Jack Haddow and Al Peters ably assisted by Dr. Alan Davis, Bob Hoffman, Butch Lloyd, Ned Wicks, Susie Hess, Clint Campbell, Buddy Clarke, John Hegedty, Bill Woolbert and Allen Williams. Judges were from Lake Sheridan, Messrs.—Heim, Armstrong, Yaggim Getz, Chvillo and McVay.



BEST IN PARADE—Old River Boat by William Gressler.



BEST SHORE DISPLAY-"Old Northern Electric" by Jerry Myers.



BEST BEAUTY float to Janet Williams.



WATER CARNIVAL COMMITTEE: (I-r) First row—Ken Llayd, Jr., Clint Campbell, Tom Richards, Jack Haddow; Standing—(I-r)—Bill Rumbold, Jack Beck, Don Stevens, Bob McGuire and Harry Schmaltz, Association president.—Photos by C. Everitt LaBarr.

Boating Questions

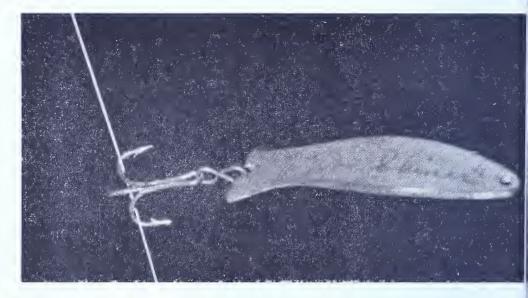
- Q. What causes an outboard motor to cavitate?
- A. Cavitation occurs when the propeller turns in a pocket of air. In this situation, the engine will often "rev" up far beyond its recommended rpm range. Cavitation can be caused by an obstruction an the bottom of the boat such as a loose screw, splinter, speedometer pickup tube or automatic bailing device not properly installed. Improper positioning of the motor is another cause. If you have cavitation problems, first check the bottom of the boat. If you can't find anything wrong, have a qualified marine dealer inspect the rig.
- Q. Although my outboard motor was installed by a marine dealer, it doesn't appear to be mounted exactly straight. He says it is supposed to be that way. Do you agree?
- A. Yes. Your motor was designed with a slight degree of affset. This is to overcome the torque created by the turning propeller. Without this offset, the boat would tend to pull to one side, making steering difficult.
- Q. What should be included in a tool kit carried aboard a 16-foot runabout powered by a 75 horsepower outboard motor?
- A. I would suggest three basic toals; screw driver, pliers and spark plug wrench. You should also have extra drive pins, catter pins, spark plugs and a spare propeller aboard at all times. Keep them in a place where they will stay dry.
- Q. I understand that most outboard motor manufacturers offer a selection of propellers with their large models. What's the best way to choose the right propeller?
- A. The best way and really the only way is to have your dealer check the motar at full thrattle with a tachometer. The prapeller that allows the motar to turn the number of rpm recammended by the manufacturer is the one to use. It's often necessary to have more than one prapeller if you are going to use the boat for different activities such as cruising and water skiing.

[&]quot;Three sheets to the wind"... this picturesque expression to describe a state of intoxication is nautical. A full-rigged ship would have three foresails set. In changing tack (coming about), the sheets or lines would naturally be loosened. As the ship came up to the wind it would lurch... not unlike a drunken sailor

7ackle 7ips

LOST: ONE BASS LURE

By DON SHINER



TWISTIN' MINNIE spoon closely resembles a minnow in the water. It is mad in stainless steel, brass and copper finished, in sizes $\frac{1}{8}$, $\frac{3}{16}$, $\frac{3}{8}$, $\frac{5}{8}$ and 2-02

After the third smallmouth bass struck and finally came to my outstretched net, I paused to re-examine, with raised eyebrows, the small sparkling spinning size spoon. This was no ordinary forged spoon lure! The variety of contortions it underwent as it swam back for a recast across the Huntington stream was nothing short of amazing. Depending upon the rod work, the little spoon darted, twisted, fluttered in a crazy zig-zag motion, or rolled top side like a minnow rushing from the clutches of a big smallmouth, or swam with the gentleness and beauty of a Hawaiian dancer. Further, it could be made to run shallow or with moderate reeling speed, to dredge the depths of a deep pool. The "twistin' minnie" spoon, manufactured by one of Pennsylvania's newer industries, was without doubt one of the nicest and most tantalizing lures to cross my angling trails in quite some time.

Bill Steffey of the Steffey Brothers of Irwin, Pa., dropped one of these new spoons and asked that the "minnie" be given a fair trial for lunker size browns. The little ½ oz. spoon had an immaculate finish, and to my surprise had my name engraved across the convexed side of the lure! I learned later that this is standard practice of the Steffey Brothers to engrave the name of the angler on a selection of spoons which are made in stainless steel, brass and copper in ½, ¾₆, ¾, ¾ and 2 oz. sizes. The angler's name engraved on the lure not only adds an extremely personal touch, but may provide the means of having the lure returned if accidentally lost—as mine had been lost—on a stream near the angler's home.

Gcared to the May fly hatches, the spoon rested on my desk for the best part of two weeks as I whirled the feathered hooks. Then bass season unfolded. I added the "twistin' minnie" to the hardware box, and drove to my camp along the lower reaches of the Huntington Creek in north central Pennsylvania. This is a smallmouth stream, with an occasional trout mixed in to delight the angler.

Donning boots and threading the spin stick, I walked at a lively pace toward the stream. There I paused momentarily in the shade and glanced across the broad water in time to see a splash against the slate ledges. A smallmouth had apparently chased a minnow and doubtlessly nailed it squarely between powerful short jaws. This was a clue to opening the hardware box and picking a lure that could resemble a minnow darting playfully in the stream. The little "twistin' minnie" was the top spoon in the box. Because of its accessibility and partly because I was curious concerning the action of this personalized spoon, the "minnie" was tied to the monofilament.

Second cast out struck pay dirt! The bass, though only of moderate size, had more spirit than most smallmouths twice 'ts size. In less than a dozen casts, three smallmouths were hopping about in my fern lined creel. Little wonder that the 'rwistin' minnie' caused my eyebrows to rise in amazement.

Then it happened. Several casts later the little spoon sailed to parts unknown on the far side of the stream. The closed

face spin reel had jammed, and the momentum of the lure parted the light line. My charmed spoon was gone.

I switched to an old spinner and fly standby. This lurc crecled another smallish bass, and I missed another that tossed the fly in a flying water leap at finger tip length from my boots. This number of bass was sufficient for a fish fry. I retraced steps back to the camp shelter, thinking intermittently of my little personalized spoon lost somewhere on the far side of the Huntington. Perhaps some angler scaling the rock studded shoreline would stumble upon the lure. Made of stainless steel, the spoon would shine brightly for many years, even when exposed to the elements.

In case some Pennsylvania angler finds this lure, I would be grateful for the return of this "twistin' minnie" spoon. It has the name "Don Shiner" plainly engraved on one side, Steffey Bros. on the other side. However, before returning the lure, I have no objections to that fisherman tying the spoon to his monofilament and whirling it several times into the pool. It casts like a bullet and will net scrappy smallmouths as well! Don't let it change your mind about returning this tanalizing spoon.

Like a Leech?

ON'T be surprised if you find fishermen using lampreys, salamanders, bread crust, canned corn or peas, raw potato, turnips, popcorn, chicken innards or even leeches. And that last one—leeches—is really a deadly bait for many kinds of game fish.

The only reason leeches are not used more often is that they are too hard to obtain.

Years ago barbers kept leeches to "bleed" customers with boils, carbuncles and other miseries. But today you can find them in better bait shops, preserved and packaged to appear completely alive to any hungry fish. The backbreaking chore of collecting them from creeks has been eliminated. So has the need for carrying a bait bucket. Now a fisherman can easily carry a day's supply of leeches in his shirt pocket.

Just how do you fish a leech? Allow it to drift naturally downstream into the pools, pockets and eddies as you would any other bait. In lakes, keep it moving slowly along the bottom. The results might stop you forever from laughing at the guy who tries unusual baits.

Big Turnout for Annual Fishing Contest

More than 6000 persons viewed the Lehigh County Fish & Game's 30th Annual Fishing Contest. Frank Voyden, Allentown took first prize with a 22-ineh rainbow and 9-year-old Ruth Ann Ritter took the ladies' crown with a 19½-ineh rainbow.

West Chester Club Holds Rodeo

The 13th Annual Fishing Rodeo of the West Chester Fish & Game Association, Inc., was held recently at Russell Jones' pond. More than 150 youngsters ranging from two to under 16 years of age turned out for the event.

In the bass class Steve Till, West Chester, won first prize for boys and Barbara Green, also West Chester, was winner in the girl's division. First prize winner in the bluegill class for boys was Thomas Dowlin and Dawn McMonagle, both of West Chester, took top honors for the girls. A complete fishing outfit was awarded to each winner of the bass division and cameras went to the winners in the bluegill class.

Charlie Andress was the Chairman of the Rodeo committee.

The club's picnic, scheduled for September 8, was to be followed by the elub's Small Game Meeting on October 22.

Stream Improvement Project By Lehigh Club

The Lehigh County Fish & Game Protective Association's Operation Stream Improvement project moved ahead this past summer under the leadership of Don Jacobs and Joe Samusevitch with District Fish Warden Norman Sickles assisting. The work was done on the Little Lehigh River between the Fish Hatchery and the Flat Bridge where a series of new log and stone dams and deflectors were installed. These improvements should improve next season's fishing. Help eame, aside from members, from the Boy Scouts, Girl Scouts and the Macungie Conservation Patrol.

TELL US ABOUT YOUR PET "BETTER FISHING" PROJECT

"What can we do to improve fishing in our local area?" This question is frequently asked of the Pennsylvania Fish Commission and now we ask for your help. Perhaps your sportsmen's club, civic group, Boy Scout, Explorer Troop has completed a stream improvement project, a trout rearing program or other activities designed to improve fishing in your area. We would like to have the know-how, the step-by-step details, snapshots or photographs of how the project was planned and completed. Your ideas may inspire other conservation-minded groups in Pennsylvania to the benefit of all of us. The Pennsylvania Angler will gladly serve as the clearing house of all "BETTER FISHING" project ideas. Send them to the Editor, Pennsylvania Fish Commission, South Office Building, Harrisburg, Pa.

MURDER?

No . . . there was no murder in Tunkhannock despite the excitement generated in Towarda recently when a bus driver and his passengers saw what they thought was a body lying on the grass, the police there and everybody snapping pictures. Twern't so!

When the bus passed, Frank Horroeks, Tunkhannock was just passing up the main street (a skunked fisherman always takes the alleys) proudly displaying a 35-inch lake trout, weighing 15-17 pounds he eaught at Crystal Lake, Wayne County.

The Daily Review editor, scenting a real story with the cops and everything, got hold of the law. The police informed him it was only a fish, the squad car stopping to see it with the four-way blinker on. The editor sadly went on to bigger things.

TROUT NURSERY WATERS—This nursery will be the home for about 25,000 small brown trout being raised by the Yellow Breeches Anglers and Conservation Association at hatchery waters near Boiling Springs, Pa. Members will hold the trout until they reach legal size for placing in open fishing waters. The Pennsylvania Fish Commission is cooperating in the project with Commission member John Grenoble offering valuable assistance.—CARLISLE SENTINEL photo.



The FROM THE STREAMS

The Philadelphia Council of Scouts received an award from the U. S. Dept. of Agriculture on the 18th July. Reward was presented by the Under Secretary of Agriculture, Murphy, to the Scouts for their achievements in the field of Conservation. They own Treasure Island and Marshall Island in the middle of the Delaware River, near Lumberville, Bucks County. On these islands they have planted many acres of food plots with corn for game, they leave stand for that purpose. They have planted fence rows, made border cuttings, etc. They have also done remarkable work in the line of soil conservation of the banks of the island by cribbing bank gullies with timber taken from the island trees, then filled the cribbing with stones taken from the Pa. side of the island where the river has not caused an erosion problem. Plus the trees they have planted, etc. Scout leaders have the scouts play a game to accomplish the tremendous work projects they have accomplished. Troops stationed there for a week's camping will compete against other troops for the high score in a game that takes this form. The troops take a turn at gathering stones from the river bed. They are then issued points for a time trial on loading a trailer with these stones they must toss in from the creek bed to the waiting trailer. Best time for loading the trailer gets a watermellon for the troop at the end of the week. Leaders say the kids really work to get a low time and put all into the project. After the stones are loaded the leaders have a tractor take the stones to the Iersev shore of the island and dump them. Then they put a tomato can over a pole in the cribbing and the scouts try their skill at hitting the tomato can for more points; the stones get moved and the kids have a good time doing it. Last year these scouts moved 17 tons of stones from the river bed in this manner, threw that same amount of stones at a tin can or so and filled the gullies on the Jersey side where the erosion problem is the greatest. There were many conservation people present at this award winning event, 50 years of scouting on Treasure Island.

-District Worden MILES D. WILT (Bucks and Northampton)

While on a routine patrol recently, I came upon a dead hen pheasant in the middle of a road. Three young chicks were huddled around the lifeless body of their mother and they appeared bewildered, walking around in circles. I stopped, walked toward them and they flushed a short distance; began calling. I removed the dead hen to the field to keep the young chicks off the road. I figured they would abandon the hen after all body heat was gone. This is only one instance in the fight for survival in nature and an example of trust and dependence wild young have for their mothers.

-District Warden RAY BEDNARCHIK (Chester-Delaware)

Last blustery spring, the Brockway Sports Club in the northern half of Jefferson County were ready and willing to assist getting the trout stocked in streams of the area. They have recently joined the Fish Commission as a Trout Cooperator. At their summer clubhouse they have constructed one 60 x 4 x 3 foot raceway, with plans to expand this with another of the same size adjacent to the one already constructed. They are now raising 5,000 brook trout and will increase this number with the completion of the second raceway next spring. Jack Townes and Bill Petty were the masterminds behind the projects. The club is under the capable leadership of Bill Sabatose, ardent fly fisherman and outstanding sportsman.

-District Warden BERNARD D. AMBROSE (Elk)



PENNSYLVANIA DISTRICT FISH WARDEN Norman Ely, Waterford, holding microphone, explained the fish propagation program at the Pennsylvania Fish Commission's Union City Hatchery to more than 100 persons who took the Erie County farm tour recently.—Erie Daily Times photo.

At Koon and Gordon lakes the Fish Commission places litter baskets. Often I have noticed baskets upset and the litter scattered but the way it was scattered told me it could not be by people. A coon could upset the baskets but on the night of August 11, Mr. and Mrs. James Lowry, while at Koon Lake, noticed a large black bear digging litter from the top of a basket, finally upsetting the basket and scattering litter all over the spot.

-District Warden WILLIAM E. McILNAY (Bedford)

Larry Morrelli, New Castle, Pa., reports that while fishing the public dock at Conneaut Lake Park he got a bite, set the hook and had a battle. The fish turned out to be an eel between three and four feet long. He brought it in on one side of the dock and when he unhooked it, the eel took off on the other side of the dock into the water. Two or three fishermen observed this and said they didn't know there were eels in the lake. This is the first time I have ever heard of an eel in Conneaut Lake and I wonder how it got there and if it has any relatives living there.

-District Warden RAYMOND HOOVER (Crawford)

While on a patrol of Lake Jean on the Sullivan-Potter county lines, Deputy Game Protector Roberts and I observed a boat depart from the shore only to make a wide circle and return. Occupants appeared to include a "Mom 'n Dad and two sons combination." The boat landed, Mom disembarked holding a casting rod arched not unlike a hunter's bow . . . she was holding the grip near the reel while the tip was bent around out of sight. As she neared us she volunteered this explanation . . "He was supposed to be after fish . . . but he got me!" As she walked away quite embarrassed, we saw she had been caught squarely in the seat of her slacks with a large bass plug! A little piece up the road she turned and quipped . . . "What a scene for Candid Camera!"

-District Warden JAMES F. YODER (Luzerne)

COMMISSION EMPLOYE DIES

Blair Strayer, a former employe at the Reynoldsdale hatchery died at the Windber Hospital on August 5, 1963. He was born at Queen, Bedford County on November 9, 1910 and is survived by his widow, the former Pauline Horne whom he married Feb. 4, 1936 and one son Paul, who is a teacher in the Bedford County school system. He was employed by the Pennsylvania Fish Commission on July 3, 1928, worked on construction of the Reynoldsdale hatchery as an equipment operator until completion of that project, then served many years as driver, messenger in stocking fish from the various hatcheries throughout the state. His classification was Fish Culturist I. He was a member of the New Paris Methodist Church, F. & A.M. Bedford Lodge #32, Altoona Consistory and the T.P.A. of America, Johnstown, Pa.

Dear Editor:

It is seldom that I write letters to publications, but under

the circumstances I think this one is necessary.

Some time ago I wrote to the Warden Supervisor of the Northwest Region, Mr. S. Carlyle Sheldon, asking if he could possibly give me some information concerning float trip fishing on the Allegheny River. Although I have never met this gentleman to this day he promptly responded with considerable information, together with the name of Herb Bush in Tidioute, Pennsylvania, and suggested I contact Mr. Bush concerning the actual arrangements. This I did and over the past two years have become very friendly with Mr. Bush and have fished the Allegheny several times and intend to continue to do so.

I would like to commend, publicly, your Mr. Sheldon for

his courtesy and helpfulness.

Sincerely, Ronald H. McConnell, Attorney Cleveland, Ohio

It was a pleasure to receive such a nice letter, Mr. McConnell.

Walter J. Burkhart Fish Warden P. O. Box 2 West Point Pennsylvania

Dear Mr. Burkhart:

In case you do not remember me, I am the old man who wrote to you during May for some information on Montgomery County, Pennsylvania and the fishing there.

The literature you sent me proved instructive and quite

helpful.

The vacation I spent at Spring Mountain House near Schwenksville, was most pleasant and I had a fine time. I want you to know that your kindness and the help you gave me played a large part, and was one of the main reasons why I had such a pleasant and enjoyable time.

I expect to return again before too long. With best wishes to you and many thanks.

Sincerely yours, Neil R. Hazard Branchville, Maryland

Knowledge doesn't keep any better than fish.

• • •

The most indispensable item in any fisherman's equipment is his hat. This ancient relic preserves not only the memory of every trout he ever caught, but also the smell.

The word "wilderness" eomes from the Old English "Wildeorem—like wild beast." Foresters generally define "areas which are untouched by the works of man, are inaecessible except by trail, are roadless and have no man-made facilities." An apocryphal tale concerns a little old lady who alighted from a bus and asked the forest guide, "Where is the wilderness?" "Lady," he replied, pointing toward a dense stand of trees, "out past the last pop bottle!"

25,000 Musky Fry in Bags Flown in for Perkiomen Creek Stocking



PACKAGED MUSKELLUNGE that arrived by plane are held by (1-r) George Cunningham of the Boulder Valley Club, District Fish Warden Walter Burkhart and Robert Leister, Special Fish Warden. The fish were released in the Perkiomen Creek, from Green Lane to the Schuylkill River.—Town & Country photo.

The largest consignment of fish ever shipped here by air, sealed in plastic bags, arrived recently for distribution in the Perkiomen Creek from Green Lane to the Schuylkill River. District Fish Warden Walter Burkhart, West Point, picked up 25,000 musky fry, averaging one inch in length, at Reading Airport where they arrived by air from the Pennsylvania Fish Commission's hatchery at Union City. Total trip time for the fish was four hours.

Approximately 1,000 of the tiny fish were packed in each of the plastic bags, which were then filled with water and sealed for shipment with a tiny opening left for pumping in oxygen. It is estimated that fish so packaged can live for 12 hours. If the fry survive they may grow to 10 inches by fall. Assisting Warden Burkhart in placing the fish in the Perkiomen were Robert Leister of Red Hill, deputy fish warden, and George Cunningham, Pennsburg, Pa., chairman of the fish committee of Boulder Valley Sportsmen's Association, Sumneytown.

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Everything meets at the shore. Animals come down to drink and bathe, and some get their meals from the shore and shallows. The human animal goes one step further and may grab the whole shore to recreate himself.

Waterfowl nest along the shore and feed in the shallows. Shore birds pick up the invertebrates that live there and fish come in to spawn and shallows are the nursery grounds. Frogs and turtles have one foot in the water and one foot out.

Now who should have the shore, man seeking recreation or the fish and wildlife he seeks as part of his recreational package? Obviously, it cannot be all one or the other and there is a middle ground. We feel that 25 per cent of the shore ought to be dedicated to wild things.



400 POUNDS OF CARP, 47 in number, gigged by Paul and Harry Chubb, Jr. in the Susquehanna River near Millersburg, Pa., recently, on one evening. The following evening the pair gigged 48 carp weighing almost 500 pounds. The fish were put to good use. Photo by F. Park Campbell, Editor, Millersburg Sentinel.

MAN ON WRONG END OF FISHING LINE

POINT BREEZE, PA.-A Point Breeze, Verona, man isn't likely to forget the fishing trip from which he returned recently—in a long, long while.

William F. Schultheis, 512 Fifth St., Verona, who was enjoying fishing at Tamagini, Canada, along with his three grandsons recently, got something stuck in his throat which doctors there thought to be a fish bone and which turned out to be a three-pronged (treble) fish hook.

It happened this way, when the boys upset the tackle box in the boat, he gathered it all up and threw it back pell-mell into the box. When they returned to the cabin he dumped the box on the table in order to straighten out the tackle. Mcanwhile he picked up a chunk of bread, spread it with apple butter, which was also on the table, and enjoyed a snack. Immediately afterward, he felt something sticking in his throat which he could not dislodge.

He finally went to a doctor at a YMCA camp some 12 miles away on another island and after examination was told he had probably swallowed a fish bone—but was also told the doctor had no proper instruments with him to remove it.

Mr. Schultheis stayed five more days at the fishing camp, practically living on milk and orange juice. When his voice became affected he decided to come home and upon arrival here, entered Eve and Ear Hospital.

There doctors discovered he had swallowed a threepronged fish hook.

It was the first time in the history of the hospital that a three-pronged fish hook has ever been removed from anyone's throat.

Mr. Schultheis is home again and fit as a fiddle—he's even ready to go back fishing at the first invitation. He has many friends in this area who remember him from the days when he was one of the district's greatest baseball players.

-ALLEGHENY VALLEY ADVANCE-LEADER

Gentlemen:

I read with interest the article by Erwin A. Bauer in your July issue, entitled "Spinning for Carp." Lately I have become a part-time carp fisherman. For years I shared the popular opinion that these fish were immigrants who should all be deported back to their country of origin, if possible. My early fishing was done in Franklin County and was devoted to trout and bass.

A few years back I caught my first large carp, purely by accident. It was an experience that made me at least a part-time believer in the sport. I thoroughly agree with Mr. Bauer's statement that "they straighten more hooks and break more lines than all other fresh-water fishes together.

There is one particular fact all fishermen should consider. It is very difficult to go anywhere within the confines of the Commonwealth with reasonable assurance of setting the hook in a fish weighing from five to to ten pounds, and yet this is a common experience in carp fishing. Most carp fishermen have landed fish in excess of twenty pounds.

The purpose of this letter, however, is not to extol the advantages of such fishing. Mr. Bauer has done it more successfully than I could hope to do. My suggestion is that a group of recipes for cooking carp be assembled. One of the objections to carp fishing which I have encountered is this: What do you do with them once you have caught them?

I know that in Central Europe particularly, they are considcred a very popular table fish. However, a fisherman bringing one home to his loving wife in this Commonwealth runs a chance of being chased out of the house.

Perhaps the foregoing suggestion is impractical, but it occurred to me that if appropriate recipes could be suggested, the number of carp fishermen might increase, with resultant benefit to themselves and the streams of the Commonwealth.

Sincerely yours, Thomas Z. Minehart Auditor General Commonwcalth of Pennsylvania

Dear Sir:

Your most interesting letter of July 30 has jogged me into

searching my files for carp and carp roe recipes.

I have rather a warm spot for carp and catfish, probably because they are the underdogs of Pennsylvania angling circles. And, while we do give space now and then in the Pennsylvania Angler for carp bait recipes, I agree with you, it is time we offered recipes for the gourmet.

Thank you kindly for your letter.

-Editor

TRY CARP ROE

Shad, carp or flounder may be used in making this recipe. Blanch 2 roes in boiling water for 5 minutes. Drain and set aside. In another saucepan heat 1 tablespoon butter and add 1 tablespoon finely chopped onion and ½ cup raw whitefish, ctc., shredded. Cook for 4 or 5 minutes, stirring constantly, and add the fish roe, mashed with a fork and free any membranes, and 1 tablespoon melted butter. Cook for 3 minutes longer, stirring constantly and adding meanwhile another tablespoon butter kneaded with 1 generous teaspoon finely chopped chives, parsley, and onion and 1 teaspoon lemon juice. Add the roe mixture to taste, seasoned with salt, pepper and a bit of nutmeg.

The above mixture can also be added to 8 slightly beaten eggs. Make two 4-egg omelettes with melted butter and surround them with a ribbon of tomato sauce. Serve immediately.

CARP FISH CAKES

1 cup flaked cooked carp

3 cups mashed potatoes 1 egg, beaten

2 tablespoons fat

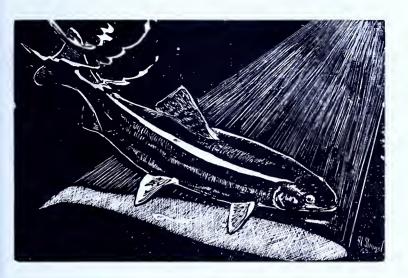
½ tablespoon butter

% teaspoon pepper

½ teaspoon salt

% teaspoon paprika

Combine the beaten egg with the other ingredients, all well mixed. Stir well together. Test for additional seasoning. Shape into cakes and panfry in hot fat until a golden brown, turning the cakes to brown evenly on both sides.—Recipe from J. Almus Russell.



Baying A Thin Moon

A fragment of legend claims Motherbush Pond Still gives back the red hunter's image And holds fast the days when a wilderness yawned Around moccasin warwhoop and scrimmage. Known to a muskrat, a sly ring-tailed coon, Where the black duck could lead, if he would, (The one that I heard in the dark of the moon With a quack that I half understood.) Nosing the north, I seek Motherbush Pond Since the night when our Algonquin guide Made me blood brother and true vagabond While the campfire whimpered and died. No woodchopper, trapper, surveyor tells more Regarding its size or location But squaw-phantoms walk with me where I explore Blurred tracks of a past generation. Traipsing a swamp-thicket, hemlock or spruce, I search the wild back-of beyond For the lost whistle-stop of the Canada goose The illusion called Motherbush Pond.

-JANE HERRICK TENNEY

Philipsburg Man Loses Fish To Hungry Bear

A. T. Sellers, a merchant here, had an unusual experience while fishing in Wycoff Run in Cameron County. Not only were his fish eaten by a bear but the bear tried to get into his car for lunch.

Mr. Sellers had caught four fish and returned to his car. He placed the creel under the car to keep the fish in the shade while he went back to the stream.

When he returned to the car again he noticed a man taking pictures—and then he saw what was being photographed. A large black bear was trying to get into his car.

When the bruin noticed the two men, he scurried off into the woods. It was then that Sellers found his fish had been devoured. Mrs. Sellers, when he arrived home, asked where his fish were and his story started: "You may not believe this but. . . ." He does have the photograph of the big bear trying to get into the car to prove his story.

Once before, Sellers nearly tangled with a bear. Last year while fishing in the stream along the Sandy Ridge Mountain, he was seated on the bank changing flies when a bear came through the brush. He got up to take off but the bear beat him to it.

FREE!

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Fish Commission

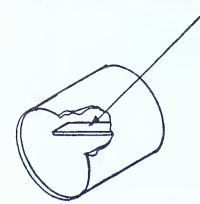
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HARRISBURG, PA.

Cash sent at your own risk. STAMPS NOT ACCEPTABLE.

OCTOBER—1963

A Pennsylvania Angler in Vietnam



HAND GRIP (fasten inside cylinder onethird the length of the cylinder)

VIETNAM SPINNING RIG

On a recent tour of duty in the Far East (Vietnam) I had the opportunity, and time off, to try my luck at fishing their local rivers and streams. I had brought my spinning reel and rod with me from the States, hoping I would have an opportunity to use them. After several discussions with my Buddies as to which were the more favorable spots to try, I decided on a river approximately ½ mile from our camp.

I arrived early and found several Vietnamese already there ahead of me. They all were very much interested in my U.S. manufactured equipment. However, a little later on, I was much chagrined to note that they all were having much better luck and continually casting very accurately with their improvised fishing equipment. It consisted of a 4 to 5 foot bamboo or reed pole with loops of wire twisted around the pole serving as eyes for the line and an old evaporated milk can as a reel!!! They had both ends of the can cut out with a small hand grip inserted inside the can. When casting, they held the can with the left hand and the pole with the right, using the same principle as we do with an open face spinning rcel. When the cast is made the can is quickly turned parallel to the pole. To reel in they would turn the can toward the pole and move it in a circular motion, similar to winding a hand line but only using one hand while holding the pole with the other. They were so expert at winding that they could tilt the can at such an angle as to apply a drag effect when reeling in the larger fish.

I thought maybe some of your readers would be interested in trying the Vietnam type rod, especially those addicted to the "Do It Yourself" type of thinking. The drawing is not according to scale and the first wire lead from the can-type reel must be placed at a point convenient to the individual user so as not to inhibit the casting or reeling in process.—SFC—R. E. REISINGER. U. S. Army

"Speed up the pumps!" That's the signal received by nervous system of a fish when the oxygen drops. They have to work harder to irrigate the gills and provide adequate oxygen for respiration.

The amount of water which must pass through the gills just about doubled for a 50 per cent reduction in the amount of oxygen for the dogfish in a Canadian study. The greater work required is a suggestion of the difficulties that arise for the fish when the oxygen drops.

-WISCONSIN CONSERVATION

0 0 0

One gift works many wonders when you give the United Way.



TYING FLIES

FIND yourself a fly that has both an insect suggesting appearance and a lifelike liveliness about it and you've found yourself a fish getter. The long-hackled, dry fly spider is such a fly. In the water it resembles an insect such as the cranefly, water strider or spider. But its greatest attraction is its ability to dance across the water as though alive and independent. This action makes it valuable regardless of the hatch or lack of hatch.

The secret of course is the extra long hackle which holds the fly on pinpoints well above the water. This conformation makes a spider ideal for fishing flat and glassy sections of streams and for lakes.

There are several good spider patterns—Brown, Blue Dun, Badger, and Cream to name a few. In appearance, they consist of a relatively small, lightweight, short shanked hook with a turned up eye and an extra large and stiff hackle. Some anglers like them tied without a body or tail. When this is the case, a gold hook is generally used. Most anglers, however, find their spiders to be more effective when complete with a body and a long tail of hackle fibers. Wings are not used.

Tie in the tail first, then the body material, winding it forward and tying it off. Next tie in the hackle, wind it, tie it off, cut the surplus and whip finish.

Such a fly is easily fished. While there may be a little wind resistance in casting, a spider will fall delicately to the water and have little tendency to drag. A wisp of current or hint of wind will send it bouncing and skating along, an action that makes even an old hook-jawed brown trout leave the depths and come to the surface.

In order to get the most action out of a spider a fairly lightweight leader should be used. One of about 9 feet tapered to 3X is ideal most of the time. It will give a spider the freedom necessary to perform its fish attracting acrobats.

Some anglers purposely tie several spider patterns with soft, webby hackles. These make excellent wet flies, good for both trout and pan fish. However, the wet and dry patterns should never be mixed, for one does not substitute well for the other.

-BILL COCHRAN



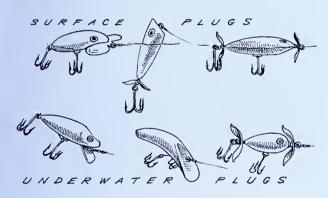
A Monthly Feature For Young Anglers

Plugging 7ime

OCTOBER might seem like an odd time to learn a new kind of fishing, but there's a good reason for suggesting that you try to catch bass on plugs now. In September and early October both smallmouth and largemouth bass will usually hit plugs more willingly than at any other time of the year. The experience you gain now will come in handy next summer when the fish are not so cooperative.

If you have a spinning, spin-casting, or bait casting outfit with which you have been throwing live bait you need nothing more except a few plugs and some other inexpensive fittings.

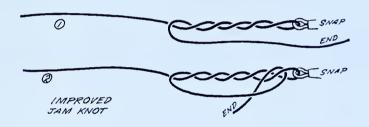
Choose plugs in weights that are suitable for your rod and reel. The quarter-ounce size is best if your outfit will handle it—don't go heavier than necessary.



Surface plugs (those that float) are usually effective for both smallmouths and largemouths. Those with one or two propellers are great, as they can be worked with a variety of retrieves. Those that paddle across the surface are especially good for evening or night fishing. In addition, you should have an underwater plug or two, either the wiggling type or the propeller type. Color is not too important in surface lures, but the frog finish is popular. Natural scale, red-and-white, and silver, are popular colors in underwater plugs.

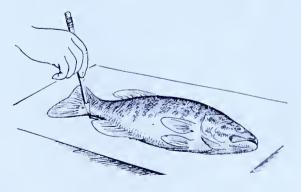
Where to fish? Try the deep holes in smaller streams for smallmouths. In larger streams work your plugs close to big rocks in deeper water, in the larger eddies, and where fast water pours into deep pools. Weed beds are a good bet, even in only a foot or two of water. For large-mouths try the farm ponds in your neighborhood (after asking the farmer's permission). Pond bass are usually shy, so keep down out of sight, cast lightly, and work your plugs slowly.

Braided casting lines wear out quickly near the end from frequent casting. To prevent this attach a piece of monofilament nearly the length of your rod to the end of your line with an improved jam knot. Tie a lightweight snap or snap swivel to the end of this leader to make changing plugs easy. If your line is monofilament merely tie the snap to it.



A Trophy for Your Wall

OW OFTEN have you wished you could eat your fish and keep it too? Well, that's impossible, but the next best thing is to make a trophy from your catch. In next month's column I'll show you how to do that, but in the meantime you'll have to get ready.



The first step is to catch a nice fish. Then, lay it on a piece of wrapping paper and carefully trace around it, holding the pencil at a slight angle so the point is directly beneath the edge of the fish. Spread the fins with one hand while you trace their outline with the other. Remove the fish and touch up any rough spots in the tracing. Now you can eat the fish.

Next month's column will give you complete instructions for turning this tracing into an attractive souvenir of your fishing trip.



Pennsylvania Angler



REPORT TO THE SPORTSMEN OF PENNSYLVANIA



REPORT TO THE

Sportsmen of Pennsylvania

BY ALBERT M. DAY, Executive Director Pennsylvania Fish Commission

Each year it is customary for any large organization to report to its stockholders on the activities of the organization and its financial status.

As Executive Director of the Pennsylvania Fish Commission, I welcome this opportunity to report to its stockholders—the sportsmen of Pennsylvania. Together we have chalked up a most impressive record, and I want to express the appreciation and gratitude of the members and staff of the Pennsylvania Fish Commission for the widespread and effective support of Commonwealth sportsmen during the past year.

Last year the Commission was in an extremely difficult financial situation in the face of declining revenues and increasing costs. We did the only wise thing that a responsible agency could do. We reduced our expenditures by \$650,000 to meet our income. It meant a reduction in production at our hatcheries, laying off stream improvement crews and leaving warden vacancies unfilled. It meant a reduction in the number of our biologists. It meant a near halt to the program of access to our rivers and lakes with almost sole reliance for such activities falling on the G. S. A. program which you helped to establish a year ago.

However, these economies brought solvency. With your backing the license increase bill passed the Legislature. Now we can start building back what we had earlier lost. We can start restoring, revising and improving our services to the sportsmen of Pennsylvania that they deserve and expect. We need and solicit your advice and assistance in this effort.

In the troublesome area of boating, the Legislature adopted a compromise bill which we hope will settle the controversy that has raged for the past six years.

Administration of the act remains with the Fish Commission. We will do our level best to administer the new law with fairness and sympathy to all groups who use our public waters.

We have been most fortunate to secure as Assistant Executive Director for Boating a native Pennsylvanian who has been the chief Coast Guard contact between that agency and all of the States on pleasure boating matters since the passage of the Bonner Act. He is Commander Edward R. Tharp of the Coast Guard, a native of Shamokin.

The new boating law provides for a five-man board to advise the Commission on boating matters. A separate amendment adds a ninth member to the Fish Commission who is to represent the boating interests.

In other areas, excellent progress has been made during the past year. The engineers who studied the question of fishways over the hydro-electric dams on the lower Susquehanna River issued their report that fish ladders patterned after those which have been proven successful on the West Coast would be "feasible".

Their report left unanswered the question of river suitability above the dams. The United States Department of the Interior refused to approve our request for the immediate construction of such facilities until more information is available on water quality upstream from Safe Harbor Dam.

A joint two and one-half year study between the U. S. Fish and Wildlife Service, the Pennsylvania Fish Commission, the Department of Natural Resources of Maryland and the New York Conservation Department was therefore organized. Financed in large part by a grant of \$196,500 from the four power companies involved, such a study is now in progress.

Because of the difficulty of securing eggs in the Chesapeake Bay this year, some 11 million shad eggs were air lifted from the Columbia River and planted in the Susquehanna and Juniata Rivers. Checks are now being made to determine the success of the operation to answer the question of river quality.

We all regretted to see Dr. Albert S. Hazzard retire as Assistant Executive Director. He has been replaced by Robert Bielo, a former regional fishery manager. His duties include the supervision of the fish passage study for the Commonwealth.

The sportsmen of Pennsylvania are to be congratulated for their leadership in the passage of the strip mine law

All in all, the 1963 session of the Ceneral Assembly was a good one for the sportsmen of the Commonwealth.

We of the Fish Commission appreciate your generous support and look forward to doing our full share in assuming the new responsibilities placed upon us.

Our sincere thanks for your confidence!

PENNSYLVANIA FISH COMMISSION DIRECTORY

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ROBERT J. BIELO
Assistant Executive Director

Edward R. Tharp Assistant Executive Director Watercraft Safety Division

Warren W. Singer Assistant to Executive Director

> Paul F. O'Brien Administrative Officer

> > John M. Smith Comptroller



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Pennsylvania Angler

Published Monthly by the PENNSYLVANIA FISH COMMISSION COMMONWEALTH OF PENNSYLVANIA

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NOVEMBER, 1963



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GEORGE W. FORREST, Editor

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FINANCIAL REPORT PENNSYLVANIA FISH COMMISSION

FISCAL YEAR JULY 1, 1962 TO JUNE 30, 1963

By RALPH J. PUTT, Asst. Comptroller



Financial transactions of the Pennsylvania Fish Commission during the fiscal year beginning July 1, 1962 and ending June 30, 1963 are presented in detail in the following schedules, statements, and clearts for the benefit of Pennsylvania's sportsmen and anglers. In order to show a complete record of the status of the "Fish Fund," expenditures made by other departments of the Commonwealth, which are authorized to expend monies from the "Fish Fund," are also included.

Before venturing into the explanation of the attached

statistical data it should be emphasized that the Fish Commission is a self supporting organization which receives no support from the tax revenues of the State. The operations of the Commission are financed solely by income derived from the sale of fishing licenses, fines collected for violation of the Fish Law, contributions from the Federal Government through the Dingell-Johnson Act which returns a portion of the Federal Excise Tax on fishing equipment to the States, and other Commission activities which are shown in Schedule 2 of this report.

SCHEDULE NO. I CONSOLIDATED STATEMENT OF FINANCIAL POSITION AS OF JUNE 30, 1963

CASH	\$1,302,538.16
LESS: LIABILITIES AND WORKING CAPITAL:-	
VOUCHERS PAYABLE—PENNSYLVANIA FISH COMM	IISSION \$ 5,868.I1
ENCUMBRANCES-PENNSYLVANIA FISH COMMISSION	ON
ENCUMBRANCES-DEPARTMENT OF REVENUE	940.38
RESERVE FOR WORKING CAPITAL	800,000.00 945,328.32
NET BALANCE AVAILABLE FOR EXPENDITUR DURING FISCAL YEAR 1963-1964	

To assist in the interpretations of the schedules herein the following explanation is offered:

Schedulc No. 1 analyzes the cash on hand as of June 30, 1963 showing that the accrued liabilities at the end of the fiscal period result in a much smaller cash balance than the original amount would indicate.

Vouchers payable represents invoices in the amount of \$5,868.11 which had been submitted to the Auditor General and State Treasurer for payment prior to the close of business on June 30, 1963 but remain unpaid as of that date.

The amount of \$138,519.83 is reserved for Fish Commission commitments to purchase feed, fuel, materials and supplies, land acquisitions, rentals, utility expenses and accrued payrolls which had been consummated but unpaid at the close of the fiscal period. The Department of Revenue is authorized by law to issue all fishing licenses, and Fish Fund money is appropriated to cover these expenses. The sum of \$940.38 is set aside to cover the outstanding bills for this activity.

Since the bulk of the Commission's revenues are remitted to the Fish Fund during the last three months of the fiscal year it is imperative to provide a sufficiently large eash reserve at the start of the fiscal period to insure that adequate funds will be available to enable the Commission to function and to pay its obligations during the period when expenditures exceed revenues. In order to meet these requirements a cash reserve of \$800,000.00 is required as of July 1, 1963. The remaining balance of \$357,209.84 is added to the estimated revenues for the 1963-1964 fiscal year and thereby becomes the basis of budgeting for the operations of the Fish Commission in the next fiscal period.

Schedule II shows a cash balance of \$1,334,712.84 in the State Treasury at the beginning of the fiscal year July 1, 1962 from which the amount of \$8,461.43, representing vouchers payable as of that date, has been deducted leaving a net cash balance of \$1,326,251.41 available for expenditure. Revenues from all sources during the year amounted to \$2,377,657.08 which, when added to the beginning balance provided a total of \$3,703,908.49 for disbursement during the year. From these funds the

Fish Commission expended \$2,215,766.54 and other State Departments disbursed \$191,471.90 resulting in an ending cash balance of \$1,296,670.05.

Schedule III shows the expenditures made by the Fish Commission in compliance with Legislative Act No. 673, Session of 1959, P. L. 1779. License sales and expenditures are shown on a calendar year basis to conform with the 1962 fishing license sales.

Expenditures are classified by the nature of the activity to which they apply. The schedule indicates that the Commission exceeded the mandated requirements for 1962 by \$147,574.48.

Charts are included to present in graphic form the revenues and expenditures for the fiscal period covered by the report. The charts are self explanatory.

The Commonwealth has many controls and safeguards to insure accurate records and accounts and the judicious expenditure of funds. Under the provisions of Article IV, Section 402 of the Fiscal Code, the Auditor General is required to audit the records and accounts of all Commonwealth Departments, Boards and Commissions at least once a year. The formal audit of the Fish Commission for the year ended June 30, 1963 has not been completed but as the records and accounts are in good order no problems are anticipated.

Other controls imposed on all Departments, Boards and Commissions are:

1—The mandatory requirement that all expenditures shall be audited by the Auditor General and the State Treasurer before payment.

2—The daily mandatory reporting of all financial transactions to the Bureau of Accounts in the Office of Administration.

3—The control exercised by the Governor's Budget Secretary over all budget matters.

4—The periodic verification of Commission accounts with those maintained by the Department of the Auditor General, State Treasury and the Bureau of Accounts of the Office of Administration.

SCHEDULE NO. II PENNSYLVANIA FISH COMMISSION STATEMENT OF REVENUE, EXPENDITURES AND CASH BALANCES FISCAL YEAR JULY 1, 1962 TO JUNE 30, 1963

REVENUE Cash in State Treasury to Credit of "Fish Fund" July 1, 1962

Less: Unpaid Vouchers in Fiscal Offices as of June 30, 1962

\$ 1,334,712.

-8,461. -8,461.Net Cash Available for Expenditures as of July 1, 1962

Receipts July 1, 1962 to June 30, 1963
Resident Fishing Licenses
Nonresident Fishing Licenses
Nonresident Trout Stamps
Special Eel Licenses and Miscellaneous Permits and Fees
Motorboat Licenses
Tourist Fishing Licenses
Lake Erie Licenses
Commercial Hatchery Licenses
Fee Fishing Lake Licenses
Fish Law Fines
Motorboat Fines
Interest on Securities
Interest on Deposits \$1,741,519.55 ,741,519.55 ,95,847.00 ,3,908.20 ,2,925.00 ,155,442.65 ,37,130.80 ,1,923.00 ,075.00 ,185.00Commercial Lake Licenses
Fee Fishing Lake Licenses
Fish Law Fines
Motorboat Fines
Interest on Securities
Interest on Deposits
Sale of Unserviceable Property (Department of Property and Supplies)
Contributions for Restocking Streams
Contributions from Federal Covernment (Dingell-Johnson Act)
Sale of Publications
Rental of Fish Commission Property
Miscellaneous Revenue—Fish Commission

Department 4,509.25 14,079.04 6,225.06 516.97 74,703.33Contributions from Federal Covernment (Dingell-Johnson Act)
Sale of Publications
Rental of Fish Commission Property
Miscellaneous Revenue—Fish Commission
Miscellaneous Revenue—Revenue Department
Refund of Expenditures—Not Credited to Allocations
Sale of Vehicles (Department of Property and Supplies)
Sale of Confiscated Property 34,137,66 5,870.00 8,928.26 Total Receipts from All Sources \$ 2,377,657 Total Funds Available During Year CLASSIFICATION OF EXPENDITURES BY ORGANIZATIONAL UNITS Classification Executive Fishery and General Manage-

Expenditures	Adminis- tration	Propagation	Manage- ment and Research	Law Enforcement	Conservation Education	Land and Waters Management	Engineering and Development	Commission Total	
Salaries Wages Professional &	$$109,927\ 67\ 3,265\ 91$	\$617,702.60 12,870.56	\$134,392.65 2,052.28	\$301,381.00 997.43	\$34,406.07 -0-	\$ 64,747.20 11,452.37	\$ 74.430.14 5,689.82	\$1,336,987.33 36,328.37	
Special Services Printing Advertising	14.455.97 $21,803.94$ $-0-$	583.41 139.49 -0-	$21,533.74 \\ 206.30 \\ -0-$	$993.00 \\ 66.17 \\ 358.10$	$\begin{array}{r} 4,104.77 \\ 43,779.22 \\ -0- \end{array}$	$937.09 \\ 612.75 \\ -0-$	54.67 24.00 $-0-$	$\substack{42,662.65\\66,631.87\\358.10}$	
Postage & Freight Communications,	2,137.81	612.05	355.29	1,531.72	7,728.87	105.00	58.60	12,529.34	
Utilities & Fuel Membership Dues	6,040.64	36,932.17	4,934.68	7,759.33	886.03	1,444.99	1,231.22	59,229.06	
& Subscriptions. Travel	$179.00 \\ 11,826.63 \\ 550.42$	$\begin{array}{c} 9.00 \\ 7.978.80 \\ 4,063.23 \end{array}$	$\begin{array}{c} 103.50 \\ 3,588.31 \\ 840.18 \end{array}$	$\begin{array}{c} 9.00 \\ 78,146.68 \\ 1,748.35 \end{array}$	$\begin{array}{c} 69.25 \\ 1,218.56 \\ 184.70 \end{array}$	60.00 5,810 13 533.97	57.00 3,116.89 326.70	$\begin{array}{c} 486.75 \\ 111.686.00 \\ 8,247.55 \end{array}$	
ment Supplies & Repairs Contracted Repairs & Maintenance	529.72	28,856.34	2,880.34	1,591.75	590.04	2,835.60	2,588.86	39,872.65	
Services Rent of Real Es-	1,174.69	$2,\!114.29$	325.77	26.60	386.76	238.30	203.62	4,470.03	
tate Rent of Equipment Miscellaneous	0-109.20	3,684.66 114.24	$\frac{336.67}{70.20}$	$1,258.34 \\ -0-$	90 00 -0-	103.50 135.00	-0- -0-	$5,473.17 \\ 428.64$	
Materials & Supplies Fish Food & Other	2,442.18	15,167.08	6,844.26	672.23	2,796.65	5,421.76	3,942.29	37,286.45	
Agricultural Supplies Motor Vehicles Equipment,	-0- -0-	176,951.35 -0-	$462\ 03\ -0-$	-0- -0-	-0- -0-	5,270.36	-0- -0-	$177,413.38 \\ 5,270.36$	Ţ.
Machinery & Furniture Land & Waters	$1,671.34 \\ -0-$	$2,84950 \\ -0-$	$262.50 \\ -0-$	-0- -0-	$34176 \\ -0-$	$\frac{2,625.10}{62,681.08}$	$\begin{array}{c} 892\ 04 \\ -0- \end{array}$	$\substack{8.642.24 \\ 62,681.08}$	
Buildings & Structures	-0-	-0-	-0-	-0-	-0-	-0-	104,371.64	104,371.64	
Non-Structural Improvements Refund of Receipts Total Expendi-	$\begin{array}{c} -0-\\ 1,359.00 \end{array}$	-0- -0-	-0- -0-	-0- -0-	_0_ _0_	-0- -0-	93,359.88 -0-	93,359.88 1,350.00	
tures by Fish Commission	\$177.465 12	\$910.628.77	\$179 188.70	\$396.539.70	\$96,582.68	\$165.014.20	\$290.347.37	\$2,215.766.54	
Department of Department of Treasury Dep	of Revenue of State	Departments (*	0	• • • • • • • • • • • • • • • • • • • •	0 :		. ()	$73,651.00 \\ -0-$	N
		ndustry ES							
Cash Balance	e June 30, 1962	2, Available for	Expenditures in	1963-64 Fiscal	Year		=		\$ 1,296,67(5
_			-	l" J une 30, 196					
(°) These items ar	e paid out of t	he "Fish Fund"	upon requisitio	on drawn by oth	ier departments	and are includ	led for a comp	= plete presentatio	on of the "h

^(°) These items are paid out of the "Fish Fund" upon requisition drawn by other departments and are included for a complete presentation of the "Fund" finances.



SCHEDULE NO. III

EXPENDITURES IN COMPLIANCE WITH ACT NO. 673-SESSION OF 1959

ct No. 673, Session of 1959, P. L. 1779, amends the Act of May 2, 1925, P.L. 448. This Act became effective December 15, 1959, and provides that the sum of One Pollar (\$1.00) from each resident and non-resident fishing license fee shall be used exclusively for (1) the acquisition, leasing, development, anagement and maintenance of public fishing waters and of areas for providing access to fishing waters and the carrying out of lake and stream reclamaon and improvement; (11) the rebuilding of torn-out dams and (111) the study of problems related to better fishing.

For the Calendar Year 1962—January 1, 1962 to December 31, 1962

	Reclamation of Lakes	Fishery Management and Fish Management Research	Acquisition of Lands and Fishing Waters	Management and Maintenance of Lands and Fishing Waters	Development of Lands and Fishing Waters	Totals
ALARIES AND WAGES	\$8,821.00	\$132,060.99	\$ 12,492.25	\$70,088.47	\$ 81,744.23	\$305,206.94
ılaríes /ages	8,821.00 -0-	$\begin{array}{r} 129,909.47 \\ 2,151.52 \end{array}$	12,207.50 284.75	49,150.90 20,937.57	73,929.50 7,814.73	274,018.37 31,188.57
THER OPERATING EXPENSES	1,039.21	46,573.50	7,999.69	19,601.10	17,391.62	92,605.12
ofessional and Special Services inting stage and Freight ommunications, Utilities and Fuel embership Dues and Subscriptions avel surance otorized Equipment Supplies and Repairs ontracted Repairs and Maintenance Services ent of Real Estate ent of Equipment iscellaneous Materials and Supplies sh Food and Other Agricultural Supplies her Services and Supplies	$\begin{array}{c} -0-\\ -0-\\ -0-\\ -0-\\ -0-\\ 955.45\\ 62.07\\ 21.69\\ -0-\\ -0-\\ -0-\\ -0-\\ -0-\\ -0-\\ -0-\\ -0$	23,092,85 209,26 274,91 6,011.17 51.50 3,376.16 1,320.09 3,287.58 350.05 389,98 133.57 6,542.09 1,534.29 -0-	5,468.66 3.60 -0- 84.58 60.00 1,699.54 134.04 543.29 -0- -0- 5.98 -0- -0- -0-	$\begin{array}{c} 61.78 \\ 614.30 \\ 105.00 \\ 924.06 \\ -0- \\ 7,710.11 \\ 902.27 \\ 2,567.46 \\ 121.66 \\ 112.50 \\ -0- \\ 6,481.96 \\ -0- \\ -0- \end{array}$	54.67 27.47 90.12 1,056.03 57.00 4,551.66 635.43 2,644.68 369.42 -0- 1,962.77 5,942.37 -0- -0-	28,677.96 854.63 470.03 8,075.84 168.50 18,292.92 3,053.90 9,064.70 841.13 502.48 2,096.34 18,972.40 1,534.29
QUIPMENT	-0-	262.50	-0-	3,796.33	2,078.31	6,137.14
otor Vehicles quipment, Machinery and Furniture	-0- -0-	-0- 262 50	-0- -0-	3,166.51 629.82	$\begin{array}{c} -0- \\ 2,078.31 \end{array}$	3,166.51 2,970.63
JTLAY FOR LANDS, STRUCTURES AND IMPROVEMENTS	-0-	-0-	170,022.19	-0-	148,320.09	318,342.28
nd ildings and Structures un-Structural Improvements	-0- -0- -0-	-0- -0- -0-	170,022 19 -0- -0-	-0- -0- -0-	-0- 87,906.14 60,413.95	170,022.19 87,906.14 60,413.95
TOTALS	\$9.860.21	\$178 896.99	\$190,514.13	\$93,485,90	\$249.534.25	\$722,291.48

STATEMENT OF RECEIPTS AND EXPENDITURES—ACT NO. 673—SESSION OF 1959

lendar Year	Resident Licenses Sold	Non- Resident Licenscs Sold	Minimum To Bc Expended	Expenditures	Over (°) or Under (–) Minimum	Cumulative Over (°) or Under (-)
57 (9-1 to 12-31) 58	4,444 621,692 603,546 587,687 573,628 561,997	165 16,294 16,438 13,107 13,196 12,720	\$4,609.00 637,986.00 619,984.00 600,794.00 586,824.00 574,717.00	\$142,467.00 452,715.09 524,014.33 750,702.97 675,570.20 722,291.48	\$137,858.00° 185,270.91- 95,969.67- 149,908.97° 88,746.20° 147,574.48°	\$137,858.00° 47,412.91– 143.382.58– 6,526.39° 95.272.59° 242,847.07°

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION

HOW THE FISHERMAN'S DOLLAR WAS SPENT EXPENDITURES FOR THE FISCAL YEAR JULY 1, 1962 TO JUNE 30, 1963

TOTAL \$ 2,407,238

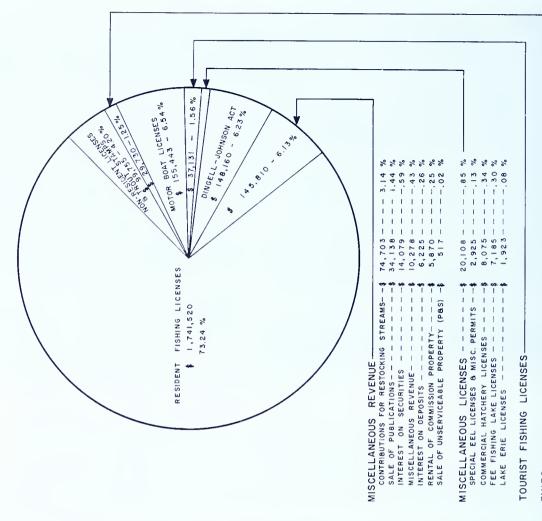
SPENT BY FISH COMMISSION SPENT BY OTHER STATE DEPT'S.

\$ 191,472 177,465 - 7.37% 16,808 3.19 % % 13,65, 3,06 % 96,582 - 4.01 MANAGEMENT \$ 165,014 00 6.86 % WATER AND RESEARCH \$ 179,189 ANO MANAGEMENT 7.45 % ANO FISHERIES PROPAGATION DISTRIBUTION 2.27 % 1.32 % 1.86 % 1.40 % \$ 910,629 .52% 37.83 % DEVELOPMENT ENGINEERING \$ 290,347 12.06% ANO EXECUTIVE AND GENERAL ADMINISTRATION \$ 54,559 31,789 44,831 33,690 12,596 LAW ENFORCEMENT \$ 396,540 16.47 % AUDITOR GENERAL'S AUDIT COSTS DIRECTOR'S OFFICE
COMPTROLLER'S OFFICE
GENERAL ADMINISTRATION
SERVICE OIVISION CONSERVATION EDUCATION \$ 2,215,766

COMMONWEALTH OF PENNSYLVANIA
PENNSYLVANIA FISH COMMISSION

REVENUE SOURCES - FISH FUND

RECEIPTS FOR THE FISCAL YEAR JULY 1, 1962 TO JUNE 30, 1963 TOTAL \$ 2,377,657



DEPARTMENT OF LABOR & INDUSTRY-(social security taxes)

DEPARTMENT OF REVENUE-(PRINTING AND ISSUING LICENSES)— DEPARTMENT OF STATE-(STATE EMPLOYEES RETIREMENT FUNO)

Report to the Sportsmen

June 1, 1962 to June 30, 1963

ADMINISTRATION

THIS is a service division which performs duties that apply chiefly to internal affairs including personnel, records, reports, budget and minutes of meetings. It prepares and issues many types of permits and licenses and drafts the fish and motor boat laws and regulations and reviews all legislation. This division acts as a liason between different divisions of the Fish Commission and other state agencies.

During this twelve month period the austerity program established in the previous fiscal year was strictly adhered to in all objects of expenditure including personnel both regular and part-time, travel and attendance of meetings, etc. The increment policy was changed in March 1963 to provide a 25% reduction in the number of persons to be granted increments.

The regular salary personnel complement was reduced by 26 positions from 278 in 1962 to 252 in 1963. A total of 247 personnel transactions were performed in addition to the following licenses and permits reviewed and issued by the division:

Artificial Propagation Licenses	249
Live Bait Dealer Licenses	315
Transportation Permits	100
Draw Down Permits	124
Dynamite Permits	9
Scientific Permits	57
Regulated Lake Licenses	253
Net Permits	274

The following permits were reviewed and acted upon in conjunction with other State agencies.

Mine Drainage Permits	533
Highway Channel Changes	292
Dam Construction and Relocation	84
Water Allocation	12

The Fishing and Motorboat license issuing and reporting systems were revised to provide more accurate and current reports of total sales in all catagories. The agent reports are processed through the Comptroller's data processing unit which provides monthly reports of sales in addition to a breakdown of delinquent agents. This is providing more current sales data plus early and accurate reporting and transmitting of license fees by agents.



NOVEMBER—1963

PROPAGATION AND DISTRIBUTION

THERE have been few changes in the overall activities in Propagation over the previous year aside from a few curtailments in certain phases of the program made mandatory due to limited available funds. It is expected that these operations will again be resumed as necessary funds permit.

This year however, a long range program was initiated for the much needed renovation of all of the State hatchcries. Work on the first phase of this program is now underway at the Pleasant Mount hatchery in Wayne County. It is planned to continue this program taking one hatchery each year or as rapidly as finances will permit. This will result in substantial savings in operations of the hatcheries and greatly improve productivity of these plants.

The need for such a program has been recognized for a number of years and we are happy to announce that initial steps have been taken and feel sure it can be carried through to completion.

The attached is a Summary Report of fish stocked in the waters of Pennsylvania including trout stocked by the Federal Hatchcries in the Federal-State Trout Stocking Program.



FEDERAL-STATE COOPERATIVE TROUT STOCKING PROGRAM RECORD OF TROUT STOCKED BY FEDERAL SERVICE—1963

Species		Number	Pounds
Brook Trout		129,684	31,716
Brown Trout		156,713	32,941
Rainbow Trout		213,174	59,379
	_		
GRAND TOTAL		499.571	124 036

RECORD OF FISH STOCKED—ALL HATCHERIES FISCAL YEAR

July 1, 1962 to June 30, 1963

			TROUT		
	Finge	erling	Advanced	Fingerling	
	Number	Weight	Number	Weight	
Brook Trout	574,850	3.861.62	20,500	2,587.00	
Brown Trout	1,086,080	6.537.27	20,500	2,594.50]
Rainbow Trout	610,000	5,057.03	8,300	1,000.00	
Albino Brook Trout	-0-	-0-	-0-	-0-	
Steelheads	39,100	139.59	-0-	-0-	
Kokanee	-0-	-0-	-0-	-0-	
Lake Trout	11.500	499.75	-0-	-0-	
Tiger Trout	-0-	-0-	-0-	-0-	
TOTALS	2,321,530	16,095.26	49,300	6,181.50	
				Grand	Total

1.50 2,375,230 781,668.99 Grand Total All Trout 4,746,060 803,945.75 lbs.

 $120.00 \\ -0 - \\ 23.00$

Weight 138.754.45

Adult

Number 510,370

670,704

WARM WATER

			Finge	rling	Sub	-Legal	Ad	ult
	Fry		Number	Weight	Number	Weight	Number	Weight
L.M. Bass	105,000		109,550	1,902.82	730	172.23	5,811	2,657.32
S.M. Bass	-0-		41,200	299.57	-0-	-0-	3,379	6,403.36
Walleye	11,700,000		45,400	402.06	-0-	-0-	259	270.81
Muskellunge	341,000	3.9 6	26,799	659.72	-0-	-0-	11	121.64
Yellow Perch	-0-		2,800	52.47	-0-	-0-	13,644	2,714.29
Black Crappie	-0-		-0-	-0-	-0-	-0-	227	117.64
White Crappie	-0-		-0-	-0-	-0-	-0-	16,323	16,323.00
Pickerel	-0-		-0-	-0-	-0-	-0-	868	537.28
Northern Pike	562,000		$7{,}115$	94.50	-0-	-0-	450	1,071.00
Catfish	-0-		200	2.46	-0-	-0-	48,650	22,726.80
Brown Bullheads .	-0-		-0-	-0-	-0-	-0-	17,134	5,616.22
Bluegills	-0-		300	1.87	-0-	-0-	9,851	2,325.15
Rock Bass	-0-		-0-	-0-	-0-	-0-	2,355	659.40
Carp	-0-		-0-	-0-	-0-	-0-	4,000	12,000.00
Oher Sunfish	-0-		-0-	-0-	-0-	-0-	39	3.06
Minnows	-0-		-0-	-0-	-0-	-0-	8,040	561.61
Elvers	1,300,000		-0-	_0_	_0_	-0-	-0-	-0-
TOTALS	14,008,000	3.96	233,364	3,415.47	730	172.23	131,041	74,108.58



RESEARCH AND FISH MANAGEMENT

HE biological staff of the Division of Research and Fish Management was further reduced during the year when one biologist was promoted to Assistant Executive Director of the Pennsylvania Fish Commission and one left for private industry. This left only three biologists in the field and three at the Benner Spring Station, a reduction of over 50% in the biological staff in the past two years. It is hoped that these important positions will be refilled. The work undertaken during the period had, of necessity, to be restricted to projects of major importance.

Accomplishments in Fish Management

Special emphasis was placed on the six-year comprehensive study of the Susquehanna River Basin. In cooperation with the U. S. Fish and Wildlife Service, the U. S. Corps of Engineers and other state and federal agencies, plans for the best future use of the waters in this great basin are being developed. Of prime importance in this respect is the planning for the Blanchard Dam in Centre County. Fish management proposals for this dam include types of fish for planting after impoundment, maintaining a summer recreational pool, building several fishing piers, establishing numerous "fish attractors", rough fish control and possible zoning of the lake for optimum use.

Commission biologists continued to make pre-impoundment studies at other potential dam sites. Fish management plans were developed for lakes built by the Fish Commission, the Department of Forests and Waters and the Soil Conservation Service.

Stream and lake surveys were undertaken by biologists only on those waters with major problems. Investigations were conducted on about 30 lakes and ponds and 35 streams. Much of the "trouble shooting" work to determine whether streams were suitable for trout stocking was absorbed by the warden force.

A recently completed Forests and Waters impoundment, Glendale Lake at Prince Gallitzin State Park in Cambria County, was stocked for the first time in the spring of 1963. As in any newly impounded fertile water, growth of the introduced species has been rapid. Northern pike reached a length of ten inches only 2½ months after they were stocked as tiny fry. Other species were growing accordingly. In contrast to other new lakes, Glendale was not closed to fishing during impoundment nor after initial fish stocking. It was believed that the size of the impoundment (1,640 acres) warranted leaving it open and that this plan would afford anglers opportunity to harvest panfish while game species were growing to legal size.

The Commission's program of expanding the range of the muskellunge in Pennsylvania through fingerling plantings continued with success. Seven new waters were stocked in the period bringing to a total of 37 the waters now supporting muskellunge which did not hold them previously. In all waters so stocked, catches of legal-size muskellunge have been reported after two or three years. The occurrence of this "tackle breaking" species in waters were they are not expected has brought renewed interest and effort to many anglers.

The Cooperative Trout Stocking Program was reviewed at a meeting of State and Federal officials in August 1962. It was agreed that the new plan, which coordinates trout stocking of both agencies in Pennsylvania, had been most successful during its first year. Under the program both Federal and State trout are consigned to streams and lakes by the Fish Stocking Manager at the Benner Spring Station. The new plan has already resulted in substantial savings of truck mileage and paper work and has done away with the earlier duplicated trout plantings by the two agencies. The program continued in 1963 with only minor changes.

Biologists of the Fish Commission and a U. S. Bureau of Sport Fisheries and Wildlife representative cooperated with the Lehigh Fish and Game Club at Allentown in their



NOVEMBER—1963



ARRIVING by air, shad eggs from the Columbia River, Washington, were planted and hatched in the Susquehanna and Juniata rivers.

HATCHING BOXES in action as placed by both Federal and Fish Commission biologists in continuing Susquehanna Shad Study.



steelhead program. Advice was given on stocking procedures, aid was given in the marking program and periodic checks were made of stocked areas with electro-fishing equipment.

Biologists assisted in the follow-up studies on the restoration of shad in the Susquehanna River as recommended by the team of specialists, Holmes and Bell. Shad eggs obtained from the Columbia River, Washington and from the Chesapeake Bay area were incubated in boxes at several points on the main stem of the Susquehanna River (above the dams) and its tributaries. A check was made on the hatchability of shad eggs after being flown from the Columbia River on the West Coast for planting in the Susquehanna River.

Miscellaneous work accomplished by the Division of Research and Fish Management included lectures, displays and tours conducted by the staff at the Benner Spring Station for various sportsmen's groups, junior conservationists, professional societies and others; cooperation with the Department of Health in several stream pollution cases; a limited number of electro-fishing demonstrations in the field; participation at meetings with other states to develop uniform regulations on inter-state waters; assistance in fish salvage operations; contributing articles to the Pennsylvania ANGLER and identifying fish specimens and assessing ages of fish scales sent in by anglers.

Accomplishments in Fish Cultural Research and Related Activities

In cooperation with the Pennsylvania State University research continued on the study of the inheritance of blood types in trout. The practical application of such a study would be similar to that used in the poultry industry where blood types are indicative of the performance of the individual in survival, egg production, growth, etc. This type of research is new, very promising and is continuing.

Other cooperative projects with Penn State include a study of the blood type relationships of the different trout species and a similar study on the pike family. These relationships as determined by blood cell antigens supplement the older methods of designating species and their evolutionary origin.

The study on the effect of diet on blood components of trout is continuing. This study, initiated last year, is being supported by a grant from the Cooperative Grange League Federation (GLF). It is hoped to relate values obtained from blood analysis from trout on various diets to information on growth, production and egg viability.

Since the Pennsylvania Fish Commission is introducing muskellunge and northern pike into new areas where, for the first time, they will be inhabiting waters with the chain pickerel and redfin pickerel, it was felt necessary to conduct experiments to determine whether these species will hybridize. During the last year, reciprocal crosses of all five species of pike found on the American continent were made. The experiments were designed to determine whether they would cross. For the crosses that are successful, the hybrids will be studied for fertility, growth and, of course, methods to distinguish them.

Previous research on trout culture at Benner Spring was put to practical use in designing new hatcheries for sportsmen's cooperative nurseries and the new trout rearing units to be constructed at the Pleasant Mount State Fish Hatchery. The new raceway designs with comparative fast change-over of water will increase the productivity and efficiency of these hatcheries.

In addition to the other accomplishments the Benner Spring Fish Research Station provided the Bellefonte Hatchery with 414,000 legal-size trout which weighed 145,720 pounds for planting in the waters of the Commonwealth. In almost all instances these trout were eight inches and above.

Accomplishments in General Fisheries Research

Additional testing of drugs for control of whirling disease in trout was initiated in the spring of 1963. One of ten drugs tested shows promise of being effective. Final evaluation will be made this fall. Cooperation with the U. S. Bureau of Sport Fisheries and Wildlife on life history studies of the whirling disease parasite is continuing.

A cooperative project with the U. S. Bureau of Sport

Fisheries and Wildlife Laboratory at Leetown, West Virginia, on the study of infectious pancreatic necrosis, a virus disease of trout, is continuing. A second testing of brood brook trout indicates that a large number are carriers of the disease. A paper on the results of this cooperative effort to date was prepared for publication in "Virology".

Studies of immunization procedures against the bacterial disease, fish furunculosis, are continuing. An experiment with one group of brown trout brood stock is now in its second year following a one-shot vaccine technique. In a cooperative project with the Pennsylvania State University, groups of brook and brown trout breeders were immunized in April and will be carefully watched for presence or absence of furunculosis during the critical egg-taking period in the fall.

Another cooperative study with the Pennsylvania State University was concerned with the occurrence and retention after feeding of coliform bacteria in the visceral organs of trout.

Evaluation of new aquatic herbicides continued at Benner Spring. One herbicide tested gave outstanding results during the spring and early summer months.

The identification and advice on methods of control of fish diseases in state hatcheries continued to be one of the major services of the biological staff at Benner Spring. In addition, a number of commercial hatcheries and cooperative nurseries sought aid and advice on fish disease problems.



LAW ENFORCEMENT



WITH the limited amount of funds available for warden travel during this period, the wardens donated many thousands of miles for which they could not be reimbursed. Worn out uniforms could not be replaced and none have been purchased for three years. Only men dedicated to their work could perform under such circumstances, and it is only proper that the sportsmen of Pennsylvania should be apprised of these facts. In spite of the above handicaps the warden force did the job expected of them.

The loss of five wardens who retired and could not be replaced, placed an additional burden on the wardens of neighboring counties and in some instances the warden supervisors.

Sixty-three voluntary contributions for pollution were collected which amounted to \$19,788.08. This does not include the \$45,000.00 contribution received from the Glen Alden Corp. during this period. However, many hours were spent by wardens on this case. It was only necessary to prosecute eight pollution cases. The fines amounted to \$950.00.

Motorboat law infractions dropped in number, an indication boaters are respecting the laws. This is gratifying since the number of boaters has increased from year to year.

The wardens manned the Commission's exhibits at the many county fairs and sportsmen's shows throughout the state, answering questions and bringing to the public a better knowledge and understanding of fish and fishlife and the many activities of Pennsylvania Fish Commission. The warden's work in the field of conservation education is one of his principal functions for the Fish Commission.

Only a well informed public can appreciate his efforts and by so doing the fish warden has earned for himself a useful place in his community. With the expected increase in revenue the warden force will be brought up to the full complement of men required to do even a better job than has been done in the past.

CONSERVATION EDUCATION AND PUBLIC RELATIONS



N spite of a reduction in its staff the Conservation Education and Public Relations Division has continued its efforts to inform and educate the public on fishing and boating in the Commonwealth.

The PENNSYLVANIA ANGLER, with a circulation of 16,365 has been a regular means of carrying information regarding Fish Commission activities to interested sportsmen.

To make the ANGLER more interesting to the ever increasing number of Pennsylvania boaters, Robert G. Miller of Columbia was chosen to write a monthly boating section. In addition, other popular and interesting boating items were featured. A special boating issue of the ANGLER was published in June.

A "Boating Guide to Pennsylvania Waters" was prepared for free distribution to boating enthusiasts. The first supply of 10,000 copies of this pamphlet was exhausted within several weeks and an additional printing was necessary.

In order to acquaint more anglers with the fine winter sport of ice fishing and to promote tourism, we prepared a pamphlet entitled "Ice Fishing in Pennsylvania". The pamphlet includes methods of ice fishing, clothing and equipment needed, and "where to go" information. We also prepared an exhibit depicting various methods of ice fishing. This proved extremely popular at the Pennsylvania Farm Show and other winter events.

Pennsylvania's muskellunge program was described in a pamphlet which includes a section on how to fish for this largest of all fresh water game fishes, as well as a listing of the waters where muskies can be found in the Commonwealth.

Two of our most popular educational booklets were revised and reprinted during the year. The third edition of "Pennsylvania Reptiles and Amphibians" and the second edition of "Fish Culture in Pennsylvania" continue to be in great demand by school and youth groups.

Our entire supply of "Pennsylvania Fishes" was exhausted during the year. It is hoped that this popular booklet will be reprinted as soon as funds are available.

One of the most popular booklets ever issued by the Fish Commission has been "Fishing and Boating in Pennsylvania". This 64-page booklet includes a listing of many of the better fishing waters in each county and the species of fish they contain; a description of the properties and facilities owned, leased or under easement by the Fish Commission; a table for estimating the age and weight of fish, a trout stream insect emergence table, and a section devoted to distinguishing the fishes of Pennsylvania.

Answering mail requests for information is a very important function of this division. More than 7,500 such requests were answered during the year, either by personal letter or by printed materials.

In addition to the weekly fishing conditions reports, forty-three special news releases were sent to more than 1,200 newspapers, radio and television stations.

A newsletter was also mailed periodically to each of the more than 1500 sportsmen's clubs in the state. This has proven to be an excellent means of communication between the Commission and the sportsmen's groups.





During the year slide lectures prepared by the division were shown to more than 200 groups, with a total attendance of 11,874. A new slide lecture on stream improvement was prepared by the division and distributed to the regional offices for showing.

Field personnel and staff members have cooperated with the Department of Health in the showing of their slide lecture and the distribution of the booklet, "How to Improve Your Fishing by Reporting Fish Kills".

The Fish Commission's live fish and educational exhibits were presented at more than 35 county fairs, major sports shows at Allentown, Philadelphia, Harrisburg, Cleveland, the Pennsylvania Farm Show and other local exhibitions with an attendance of more than 3 million people.

Division personnel designed and constructed several new exhibits during the year.

Although the elimination of our photographer and his assistant was necessary because of budgetary restrictions, all requests for photographs and color slides received from newspapers, magazines, television stations, state and Federal agencies and other sources, were filled.

In order to maintain a current file of photographs for use in the PENNSYLVANIA ANGLER as well as color slides for use in slide lectures and exhibits, division personnel spent considerable time during weekends and after working hours photographing fishing and boating activities. Other staff members also cooperated in supplying additional photographs.

The division chief made numerous appearances before sportsmen clubs, service clubs and other organizations. In addition he appeared on several radio and television programs.

The division cooperated with the Vacation and Travel Development Bureau of the Department of Commerce in the presentation of several tourist promotion programs, with particular emphasis on the fishing and boating opportunities in the Keystone state.

An active part has been taken in the planning for the National Boy Scout Jamboree to be held at Valley Forge in 1964.

The division arranged fishing trips and provided printed materials on fishing and boating in Pennsylvania to the members of the Outdoor Writers Association of America during their annual convention held at Erie in June.



REAL ESTATE AND ENGINEERING DIVISION

SOME answers to the problem of ever-increasing demand for more and better fishing and boating water is being solved by this Division's continuing program of acquiring existing lakes, lake sites and access areas as these properties become available and as funds permit.

Confronted with declining revenue and increasing cost, the Real Estate Division has encouraged long-term lease agreements with State agencies, municipalities and private land owners throughout the Commonwealth in acquiring waterfront properties having existing and accessible fishing and boating water; thereby, preserving the availability of water access for this increasing number of sportsmen.

During this period, four additional access sites have been added to the growing list of public areas. They include: Conewago Creek, York County; Borough of Rochester (Ohio River), Beaver County; Borough of Waterford (Lake LeBoeuf), Erie County; and, Borough of Millersburg (Susquehanna River), Dauphin County; and additional land was also acquired for the Greenwood Access in Perry County.

Access areas developed during this period included Raystown Access (Juniata River), Huntingdon County; Walnut Creek Access (Lake Erie), Erie County; Hunters Lake, Sullivan County; Clarion River, Clarion County; Susquehanna River (Millersburg), Dauphin County, Delaware River (Borough of Bristol), Bucks County; Monongahela River (Speers), Washington County; Susquehanna River (Borough of West Fairview), Cumberland County and Susquehanna River (Borough of Laceyville), Wyoming County.

Under the General State Authority Program, headway was made on acquisition at the Hammer Creek Lake Project in Lancaster County; this project is under design contract. Progress likewise was made at Negro Glade Dam, Somerset County, also under design contract. East Bangor Dam in Northampton County is currently under engineering investigation.

Other General State Authority Projects under investigation include Four Mile Run and/or Hendricks Run, Westmoreland County; Lily Lake, Luzerne County; Erie Access, Erie County; Harveys Lake, Luzerne County; B & O Reservoirs, Jefferson County; and Columbus Dam, Warren County.

Cooperative programs with the U. S. Department of Agriculture, Soil Conservation Service (P. L. No. 566 Projects) include Tamarack Lake, Crawford County, with construction about 85% completed, and Beechwood Lake, Tioga County, about 99% completed. Other projects in the active investigation stage throughout the State include Brandywine Creek, Chester County; Mauch Chunk Creek, Carbon County; Briar Creek, Columbia County; Kaerchers Creek, Berks County; Sandy Creek, Mercer County; Dunlap Creek, Fayette County; Neiferts Creek, Schuylkill County; Middle Creek, Snyder County; Harmon Creek, Washington County and Marsh Creek, Tioga County.

The 60 acre Fish Commission built Opossum Lake in Cumberland County was opened to public fishing in June of this year. The 204 acre Meadow Ground Lake in Fulton County currently under construction is more than





50% completed. This lake is located on State Game Lands No. 53 and is the result of an agreement between the Fish and Game Commissions.

The Department of Forests and Waters and the Department of Highways are some of the other agencies which have cooperated to the fullest extent in making their lands and water available for development by the Fish Commission for public use.

The maintenance personnel, in addition to their janitorial and maintenance duties, assisted Commission engineers to survey, construct boat launching ramp and docks, develop access area and also helped in lake draw downs. They assisted hatchery personnel in routine hatchery work and trout stocking. They worked with the Conservation Education—Public Relations Division in preparation for sportsmen shows.

They erected signs, cut brush and performed preventative maintenance on tools and equipment; attended Commission personnel meetings and submitted administrative reports. They planted evergreen trees and shoveled snow for the ice fishermen. In general, they willingly accepted and faithfully performed the countless number of assignments requested of them.

Engineering Department Real Estate and Engineering Division

DURING this fiscal year some changes occurred in the type of work performed by the engineering personnel of the Real Estate and Engineering Division.

The Stream Improvement Program which had been carried on for many years had to be discontinued.

The General State Authority Program which will provide additional fishing waters and access areas for the public, requires more design and co-ordination on the part of our professional engineering staff as each additional project is started.

The projects being developed jointly with the Soil Conservation Service of the United States Department of Agriculture continue to require additional time and coordination by the engineering staff.

An active dam site investigation program was initiated so as to have some information available if the proposed Project 70 acquisition funds become available. The Commission has not had the funds to acquire any fishing impoundment sites during the last several years, but as a result of this investigation program there are many sites on file which warrant further study for possible acquisition under the Project 70 Program.

In addition, a hatchery renovation program was initiated. It is planned to improve propagation facilities throughout the state with the initial improvements being done at the Pleasant Mount Hatchery, Wayne County. These improvements will be designed by the engineering staff and like most of the other development projects will be performed using department personnel for supervision and hiring local people to do the majority of the work. All state-owned equipment will be used to the best advantage while rented equipment will be obtained when needed.

Along with these new responsibilities, the engineering staff has continued the Dingell-Johnson fishing lake development program and the fishing and boating access development program. They have also assisted maintenance and hatchery personnel on maintaining and improving a number of existing facilities at various locations. Through the careful scheduling and co-ordination of the state-owned equipment and the engineering personnel, it has been possible to increase the scope of the development program within the planned development budget.

The following summaries show the major portion of the activities conducted by this department.

Engineering plans and specifications were completed for development of access areas at B & O Reservoirs, Jefferson County (GSA Project No. 199-2); and for development of nine access areas located throughout the Commonwealth. In addition, plans and specifications for development of Negro Glade Dam, Somerset County (GSA Project No. 199-4); Hammer Creek Dam, Lancaster County (GSA Project No. 199-6); and East Bangor Dam, Northampton County (GSA Project No. 199-8) were under preparation by consulting engineering firms working through the guidance of the engineering staff.

Preliminary plans were prepared by the engineering staff for development of a dam on East Branch Martins Creek, Northampton County (GSA Project No. 199-10); Walnut Creek Access Area, Erie County; Mountain Springs Access Road and Dam Renovations, Luzerne County; Pleasant Mount Hatchery Renovations, Wayne County; installation of (gabion) deflectors in Bald Eagle Creek, Centre County; construction of concrete boat launching



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planks and precast concrete landing docks; and stream improvement devices to be included in the revised stream improvement guide.

Topographic surveys were completed as required for all

the above projects.

Property surveys were conducted on the B & O Reservoir, Jefferson County (GSA Project No. 199-1); East Branch Martins Creek, Northampton County (GSA Project No. 199-9); Lily Lake, Luzernc County (GSA Project No. 199-3); Erie Boating Access Area, Erie County (GSA Project No. 199-13); Hammer Creek, Lancaster County (GSA Project No. 199-5); Welty Run, Westmoreland County; and Mountain Springs, Luzerne County.

Topographic surveys in addition to the projects with completed plans and specifications were conducted on B & O Reservoirs, Jefferson County (GSA Project No. 199-1); Four Mile Run, Westmoreland County (GSA Project No. 199-17); Negro Glade Dam, Somerset County (GSA Project No. 199-4); Welty Run, Westmoreland County; Mountaing Springs, Luzerne County; Pleasant Mount Fish Hatchery, Wayne County; Hendricks Run, Westmoreland County; and Halfmoon Creek, Centre County

County.

Preliminary investigations were conducted on Rapid Run, Union County; Deer Creek, Allegheny County; Four Mile Run, Westmoreland County; Coal Run, Clearfield County; Ruff Creek, Greene County; Rock Run, Indiana County; Snyders Run, Westmoreland County; West Branch Little Mahoning Creek, Indiana County; First Fork Sinnemahoning Creek, Cameron County; North Fork Redbank Creek, Jefferson County; Beaverdam Run, Cambria County; Adams Run, Bedford County; Big Run, Jefferson County; Standing Stone Creek, Huntingdon County; Columbus Dam, Warren County; Mosquito Creek, Clearfield County; Lake LeBouef, Erie County; Sewickley Creek, Allegheny County; and Great Trough Creek, Huntingdon County.

Two fishing lake developments which are being performed in co-operation with the Soil Conservation Service were nearly completed at the end of this period. These projects were Beechwood Lake and Dam (67 acres), Tioga County; and Tamarack Lake (574 acres), Crawford County. Development of a 204 acre fishing lake on a force-account basis by this department was begun in July, 1962, and was nearly 50% completed at the end of this period. This lake is located on State Game Lands in Fulton County near McConnellsburg and is being developed by use of funds available through the Dingell-Johnson Program.

Development of the following access areas was completed:

Clarion River, Clarion County

Sanitary facilities and 34 car parking area

Millersburg, Dauphin County

Paved boat launching ramp and timber landing dock

Opossum Lake, Cumberland County

Boat launching ramp, sanitary facilities, precast concrete landing dock, seeding and general cleanup

Raystown, Huntingdon County

Access road, 100 car parking area, sanitary facilities, launching ramp, floating landing dock

Bristol, Bucks County

Concrete boat launching ramp

Borough of West Fairview, Cumberland County Paved launching ramp and 15 car parking area

Hunters Lake, Sullivan County

Sanitary facilities, 35 car parking area and boat launching ramp

Borough of Laceyville, Wyoming County

Entrance road, boat launching ramp and 25 car parking area

Speers Access, Washington County

Boat launching ramp and 30 car parking area

The following access areas were improved:

Yardley, Bucks County

Paved existing 35 car parking area

Muskrat Springs, Juniata County

Widened and improved existing boat launching

ramp

In addition, development of the Conneaut Lake Access Area, Crawford County, was in progress at the end of this period.

Through the use of supervisory personnel only, this department did accomplish some stream improvement work during this period. Rapid Run in Union County was chosen for participation by the Commission in the Welfare Labor Program. Much valuable work was accomplished at this site by the use of available welfare labor in Union County at a very nominal cost to the Fish Commission.

Other major projects which were performed by engineering personnel included regrading and stone surfacing the access road into the Benner Spring Research Station, installation of concrete cutoff walls at a large bulkhead at the Benner Spring Research Station, construction of precast concrete boat landing docks and concrete planks for future installation at boating access sites.



1963 RAYSTOWN SKI SHOW FEATURES YOUNG TALENT

Most folks attending the 1963 Raystown Ski Club Show came away with the feeling the show this year was better than ever. Young local talent, given an opportunity to show their wares at Jim's Anchorage on the Juniata River's Raystown Branch, helped make the show a success. The event was given the assistance of the Bald Eagle Squadron, U. S. Power Squadron including the following: Lee Lyon, Past Comm. and public relations officer; Charles Young, 1st Lt.; David Myers, Flag Lt.; Earl Rockey, Al Reish, Kenneth Andrews, Harold Byers and Sal Alvareg. District Fish Warden Richard Owens has been credited with an assist.



YOUNG TALENT, scores of youngsters 7 to 13 years of age, were featured in the 1963 Raystown Ski Club Show held recently at Jim's Anchorage on the Raystown Branch, the Juniata River.



PRETTY PERFORMERS in the show included Kathy Woodruff on the left and Sally Strickler.

John M. Smith New Comptroller For Fish and Game Commissions



John M. Smith

John M. Smith, Altoona, Pa., was appointed Comptroller for both the Pennsylvania Fish and Game Commissions by Governor William W. Scranton commencing with September 3, 1963 succeeding Paul I. Sauer.

Mr. Smith is a Pennsylvania State University graduate, 1944, and a Certified Public Accountant. Prior to his present position, he was junior partner in the firm of Rice & Rice, CPA's in Altoona. He was also a supervisor of reports and statistics for ACF Industries, a senior accountant for Lybrand, Ross Bros. & Montgomery, manager for the Phipps Automotive Accessory Stores and office manager for General Motor Supply Company, also in Altoona.

Smith has served as president of the board of trustees of the First Baptist Church, Altoona. He and his wife, Zelda, now residing in Enola, have one son, J. Eldon Smith, of Chamblee, Georgia.



17



Boating

th Robert G. Miller



PRESIDENT of Millersburg Boating Club is Carl Fulkroad.

SKIMMING along the surface of the water at 20 to 25 miles an hour, with only a few inches of water under the keel, provides a spine tingling experience especially for the conventional outboarder who likes plenty of water before opening up the throttle.

Such was the case last summer at Millersburg when yours truly was taken for a spin on the Susquehanna River by Melvin Beard, a past president of the Millersburg Boating Club.

Beard's 20-foot craft, powered by a 65-hp airplane engine, sped along between rock ridges, over patches of grass, and over gravel bars—all obstacles which would have sheared a pin or made any outboard operator drag out the paddle or oars and head for home.

I had previously been informed that air boats were in the majority at Millersburg, with the exception of a few canoes and rowboats. I was told they were the only kind of craft that could be used during the summer months.

However, standing at the foot of Moore Street, the river looked much the same as elsewhere except the area below the dam. The misconception ended though when Beard offered a ride and I found, regardless where we stopped, a glance over the side revealed a rocky bottom just a few inches away.

Incidentally that earthen dam was built to back up the water and provide just enough depth for the two Hunter & Radel ferry boats which ply back and forth carrying automobiles and trucks over to Rts. 11-15 on the Perry County side of the river.

The ferry is the last of its breed on the Susquehanna

and may disappear within a few years when current plans to construct a new bridge in that area are completed.

The boating club has a current membership of perhaps 150 persons not all of whom own airboats. Some have canoes as pleasure craft or rowboats for fishing. The smaller airboats are equipped with power units ranging from 5 to 8 hp, while the larger are pushed along with airplane engines rated at up to 85 hp.

Conventional outboard engines cannot be used because of shallow river conditions during the summer.

For example Carl Fulkroad, 335 Pine St., Millersburg, president of the organization, uses a small airboat to get to his cabin on one of the many islands that dot the river but his well-equipped runabout, powered with a conventional 65-hp outboard engine, cannot be used in that water. Instead he has to trailer it to greener pastures, sometimes to the Safe Harbor launching ramp below Long Level, a good 45 miles away.

Unfortunately, airboats, which should have cast iron bottoms to take the kind of punishment they are sometimes subjected to, are noisy and not as maneuverable as a regular outboard with its underwater exhaust and rudder completely submerged.

Both Beard and Fulkroad agree to the lack of maneuverability and as far as noise is concerned I tried several times to converse with Beard but gave up. I couldn't even hear myself think.



GASSING UP for a spin. Mel Beard, left, fills tank as Fulkroad checks the oil prior to a run on the Susquehanna River.



SHORELINE AT MILLERSBURG showing a few airboats. The old Hunter-Radel ferry and a section of earthen dam is shown in the background.

The Millersburg organization, in cooperation with borough officials, has done a lot to spruce up the river front area since it was chartered 10 or 12 years ago. What was once a weed covered shoreline has since been changed into a well groomed park area with a few picnic tables, benches and a launching ramp built by the borough but later widened and improved by the Pennsylvania Fish Commission.

Much of the river front area involved is owned by the borough but to the north extends a stretch of privately owned frontage which club members are permitted to use as additional dock area. They reciprocate by keeping the area clean and the grass moved.

Club members have also, in recent years, constructed concrete steps at either end of the launching area and installed floodlights to facilitate using the area at night.

In addition, in past years, they entertained the local citizenry with Labor Day concerts by a band floating around on a barge; and have also sponsored night boat parades with each craft decked out with flares for the enjoyment of the shore-bound audience.

Current officers of the club, in addition to Fulkroad, include Mrs. Joyce Barry, secretary; A. W. Hawley, treasurer; Bob Kerr, Palmer Wert, Allen Boyer, Myron Bowman and Beard, all directors. Bowman is also the membership chairman in case you want to join.

SOMETHING different, for a change, took place late last summer when the Susquehannock Power Squadron, which normally confines its activities to the bay waters, held its first rendezvous on the Susquehanna River.

Unfortunately the weatherman failed to cooperate and it was a dismal, damp afternoon but the turnout was as good as could be expected, for this first time.



TYPICAL OF MILLERSBURG boats is Beard's 20-foot flat bottom craft powered by a 65-hp airplane engine. Mel built it for air boating.

The primary purpose of a river rendezvous was to cater to the outboard boater for a change since such activities on the bay are usually for the benefit of the big boat owner, most of whom are squadron members.

To be truthful about the matter there was a certain lack of interest on the part of the outboard men who could learn a lot from the squadron members and as a result certain activities had to be cancelled.

However, those who did show up, including many entire families, enjoyed themselves with boat rides (many took advantage of the opportunity to go on their first sail boat ride) out of the Susquehanna Yacht Club landing; in addition to the sailing demonstration and water skiing by three members of the Pequea Ski and Crutch Club, Ed Barto, Jake Eshleman and John Stehman.

Whether the squadron intends to conduct similar activities on a local level next year is too early to decide but events of this nature are a welcome sight on the Susquehanna and today are all too few and far between.

ALTHOUGH most pleasure boaters, in comparison to a few years ago, appear to be using more and more common sense in the operation of their craft I noticed a few violations over the summer months in the Lake Clarke area.

I noticed one or two overcrowded craft, operators sitting on the gunwales, a passenger scated on the bow of a boat underway and a few craft anchored off shore at night without lights. I found that even on a bright mooulit night an unlighted boat cannot be seen until you are almost on top of it.

Another case involved a local boater whose habit was to speed along, at full throttle, in the vicinity of bridge piers which are used quite frequently by trolling fishermen. All you need is one fisherman, trolling around one side of the pier, and a speeding runabout coming around from the other side to add another figure to the list of boating accidents. This we can do without.

For

Better Fishing

Project Youth Corps

ONE of the most hopeful programs ever introduced in Centre County—and, possibly, anwhere else in this nation—is embodied in the recently-organized Centre County Youths Corps.

Designed to offer constructive activities to youngsters who are unemployed, the Youths Corps was formed as a preventive measure.

In effect, its work will guide youngsters on wholesome paths before they have a chance to get in trouble.

The objectives, as outlined by the Corps' founders (Judge R. Paul Campbell, Paul Antolosky, District Fish Warden, Pennsylvania Fish Commission and John McHugh of the juvenile court and interested Countians), tell a complete and clear and hard-hitting story. They are:

- 1. To develop a corps of juvenile workers who will assist the Fish and Game Commissions in worthwhile conservation projects designed to benefit all residents of the County.
- 2. To provide youths 14 through 17 years of age with a worthwhile training and job program which will give them "supervised work instead of unorganized inactivity."
- 3. To give the youth of Centre County an opportunity to earn their own money and, at the same time, develop in them a constructive attitude toward conservation, and,
- 4. To provide more attractive recreational facilities in the County through the work of the Corps.

Because the word "juveniles" is used, it is not necessarily applied to those youngsters in trouble.

While some of the Corps may be recruited through the juvenile court, the program as outlined is designed for those youngsters who have dropped out of school or who have completed school and have been unable to obtain employment.

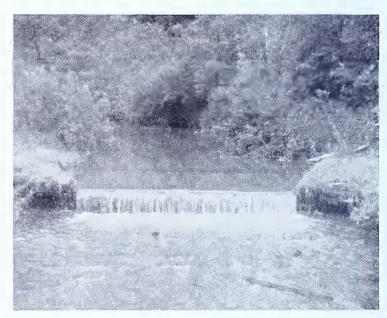
Heartening, along with this, is the fact that a program for girls, as well as boys, is being worked out.

With the announcement of the formation of the Youth Corps, letters were sent to County civic and service organizations asking for financial support.

The program was launched in experimental form thanks to the generosity of a few individuals. Recently their investment was recognized by the Centre County Commissioners who allocated \$1,000 to assist in getting the program started.



YOUTH CORPS of Centre County laying flooring plank for jack dam.



COMPLETED dam showing waterfall and dressed areas. This fine project by the Corps was placed in Logan Branch, Centre County.

All money contributed will be used as payment for work done by Youth Corps members. Supervising officials are donating their time to the project.

. . .

We can't think of a more worthwhile program ever to be introduced in Centre County.

It's tackling the so-called "youth problem" at its very roots, attempting to find constructive, rewarding work which will benefit not only the Corps members but the entire population of the County in two ways—improvement of conservation efforts and removal of youngsters from the potential juvenile court calendar.

Those responsible for founding the Corps and getting it started have performed a truly wonderful service. It remains now for other Centre Countians, individuals as well as organizations, to transform their dreams into realities.

—Editorial—Centre Daily Times

Logan Branch Project

CONGRATULATIONS are certainly in order for area Fish Warden Paul Antolosky of Bellefonte and the group of volunteer sportsmen who are working under his supervision on the project to give Logan Branch a "face lifting" through the medium of "jack dams." The group cooperating in the constructions of a series of five of these small dams is to be highly commended for the service they are rendering not only to the sportsmen who like to fish that stream but also to the general public. This program not only improves the quality of water and its ability to better support fish but also helps to give that small but famous trout stream a much more attractive appearance as it flows from near the Fish Hatchery at Pleasant Gap to its mouth in Spring Creek on the western edge of the Claster Lumber Co. plant in Bellefonte a short distance above the railroad trestle.

The first dam was built near the S. Johnny Gray residence at Axemann at a point just below the bridge leading from Route 53 up what was long known as the Rishel's Hill road, which intersects with Benner Pike. Another of the dams is about completed at the Buchanan Garage near the site of the gas plant. Three other dams are scheduled to be built at the old "Black Barn" farm near the Gray auction barn; near the ruins of Pier 53, and at the Cerro plant just south of Bellefonte. Purpose of the dams is two-fold. The falls they create aerate the water adding oxygen needed to better support fish life, and the pools formed both above and below the dams serve as excellent hiding places for fish.

As this corner views the program, we predict this improvement under way now on Logan Branch could very well become a pilot project or a shining example of how conservation-minded sportsmen voluntarily banding together under the supervision of fish wardens such as Mr. Antolosky, can improve many other trout streams in Centre County. Keep up the good work fellows! We hope that you will receive many offers of assistance from organizations and individuals desirous of contributing material and labor to this worthy cause.

—The Old Angler in Centre Democrat.



TELL US ABOUT YOUR PET "BETTER FISHING" PROJECT

"What can we do to improve fishing in our local area?" This question is frequently asked of the Pennsylvania Fish Commission and now we ask for your help. Perhaps your sportsmen's club, civic group, Boy Scout, Explorer Troop has completed a stream improvement project, a trout rearing program or other activities designed to improve fishing in your area. We would like to have the know-how, the step-by-step details, snapshots or photographs of how the project was planned and completed. Your ideas may inspire other conservation-minded groups in Pennsylvania to the benefit of all of us. The Pennsylvania Angler will gladly serve as the clearing house of all "BETTER FISHING" project ideas. Send them to the Editor, Pennsylvania Fish Commission, South Office Building, Harrisburg, Pa.

Wallace Run Project

The Unionville Sportsmen recently held a stream improvement workday combined with a chicken barbeque for all hands who assisted the project. After the perspiration and sweat subsided, five "jacktype" dams had been constructed, several deflectors installed and half a bridge spanning Wallace Run (Centre County) erected.

The work was done under the supervision of District Fish Warden Paul Antolosky, District Game Protector Charles Laird and Game Commission Land Manager Dan Reed. Last year the club constructed several similar devices. Large equipment such as bulldozers and hilifts were donated for the project by Norman Fisher and Lloyd Spotts. This type of cooperation and hard work is to be commended highly for service to conservation.



WALLACE RUN work . . . laying second floor on dam, District Fish Worden Poul Antolosky is kneeling; falls oerotes water adding better supply of oxygen to the stream necessary to fish life.



On display at the Butler County Fair I had two muskellunge about 14 inches long which proved to be great attractions because many of the folks in this part of the state never saw a small musky.

-District Worden CLIFTON E. IMAN (Butler and Beaver)

Special Fish Warden Raymond White told me that while he was checking fishermen along the Mont Clare Canal in Montgomery County, he came across a man 92 years old fishing and having a good time. This man, Frank Leeson, Norristown, Pa., has fished this area all his life and when he was younger always used to row a boat on the Schuylkill River. In the more than five years I have been in this district, Mr. Leeson is the oldest fisherman we have checked thus far.

-District Worden WALTER J. BURKHART (Montgomery and Phila.)

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About two years ago a count of the permanently docked boats on Conneaut Lake was made and at the time there were about 850 boats. This did not include any transit boats that were launched around the lake. Recently a boat count was made of the permanent boat population and here are the results: Inboards—273; outboards—435; cabin cruisers—26; pontoon boats—22; sail boats—55; row boats—98, a total of 909. No estimate has been made for transit boats. Conneaut Lake has a water surface area of more than 900 acres. The figures appear to indicate there is one boat for about every acre of surface water.

-District Warden RAYMOND HOOVER (Crawford)

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While on a recent routine patrol I met several interesting senior citizens fishing the Delaware Canal near Upper Black Eddy in Bucks County . . . Sixty-six-year-old Clarence Lewis and his wife of Quakertown, Pa., and a friend who regularly fishes with Mr. Lewis, William Gerhardt of Perkasie. Pa. Mr. Cerhardt has a 4-month-old pup, fox terrier and toy terrier combined, named Patty with a bad habit. As soon as Gerhardt gets a bite and lands a fish, Patty is right there on the spot waiting for him to unhook the fish. Patty then grabs it, pinches it all along the lateral line, picks it up and runs with it . . . not to hide but to give it to Mr. Lewis. While I was observing them, Mr. Gerhardt caught three carp. Patty grabbed the fish, went thru the whole procedure and took off down the towpath to drop the fish before Mr. Lewis. Whether Lewis was getting behind in the eatch count or not Patty dog wasn't taking chances . . . she quickly stole the fish from her master and passed them along to his fishing buddy. It was all in fun, of course, but it may be that Patty will soon be forced to buy a fishing license if she keeps on peddling fish around the country.

-District Worden MILES D. WITT (Bucks and Northampton)

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Skin diver Bob Sanford reports a great increase in the number of fish observed while diving in Lake Wallenpaupack. There seems to be a lush growth of grass on the bottom this year which is unusual. Most fish seen are within 200 feet of shore and within the anchored boat area yet fishermen are fishing just beyond them. I advised anglers of this report but few appeared to take it seriously.

-District Warden JOSEPH E. BARTLEY (Pike)

While preparing our stream shocking equipment for a fish populations survey on the Kishacoquillas Creek, Mifflin County, an Amish gentleman stopped to observe. As we talked he told me he simply had to get to work but would stay until we got started to see how the equipment operated. He was very much fascinated by what he saw and spent the next three hours following us upstream. He was well acquainted with the stream for he would tell us beforehand just where we would find the big ones and, he was seldom wrong. At the end of the .8 of a mile we tallied over 500 trout from four to twenty-six inches in length

-District Warden RICHARD OWENS (Huntingdon and Mifflin)

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A fisherman had his boat up on a beach of one of the lakes in my district and was kneeling down along side fixing the anchor chain. After repair was completed he stood up to survey the job. In this instant he was hit solidly in the chest and knocked over backwards. Much to his surprise, he saw a large Canadian goose floundering near his feet. This large gander was coming in for a two-point landing when the fisherman got up directly in its path. That crazy bird had better not be stunt flying during hunting season.

-District Worden RAY BEDNARCHIK (Chester-Delaware)

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While on patrol of Hoffman Run above Twin Lakes, I was checking the license of a lady fisherman when her husband came walking over from the car carrying a quart tin can. He approached me with a smile and a handshake. He told me they were on a combination camping and fishing trip. He then pulled out a large crayfish from the can and asked me what the raspberries were doing on the tail of the crayfish. I had to grin when I explained the "raspberries" were the eggs of the female crayfish and that she carried them there.

-District Warden BERNARD D. AMBROSE (Elk)

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Mr. O. L. McCullough, Franklin, Pa., caught a 47½-inch, 27½-pound muskellunge from Sugar Lake this season. The bass and walleye catches from the Allegheny River up to mid-season have been poor.

-District Warden CLARENCE W. SHEARER (Venango)

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Fishermen at Koon and Gordon lakes often use lights hung out over the water to attract fish and this method does work. Some while ago Wilber Snyder of Everett, Pa., fished Gordon Lake hanging a gas light from a bridge. If he raised the light there would be a commotion on the water below and it was discovered muskellunge would take after smaller fish feeding on bugs attracted by the light. On occasion a musky actually killed a 12-inch yellow perch that got into the circle of light. Snyder got the perch after the musky spooked and saw that it had really been chewed.

-District Warden WILLIAM E. McILNAY (Bedford)

. . .

There are anglers in my area who seem to consistently catch fish. Some are trout specialists, some musky mentors and others walleye and bass experts. I believe each has earefully studied the waters he fished and the species he's fishing for over a period of many years. I suppose that is why ten per cent of the fishermen catch 90% of the fish. There is no reason why more fishermen cannot do the same if they would only apply themselves.

-District Warden RAYMOND HOOVER (Crawford)

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DR. ALVIN R. GROVE, vice president of the Pennsylvania Federation of Sportsmen's Clubs addressed the group at their recent fall meeting at Williamsport.

Retired Commission Employe Dies

Scott E. Bailey, formerly employed as a Fish Culturist I, died recently at his home. He started with the Commission on April 1, 1930, and retired on December 28, 1962. He would have been 63 years old on December 28 next.

REPORTS ON FISHING BEHIND THE IRON CURTAIN

Leon Chandler, Cortland, N. Y., has returned from an interesting trip to the International Trade Fair at Poznan, Poland. He went there at the invitation of the U. S. Department of Commerce to demonstrate American fishing tackle behind the Iron Curtain.

Leon reports a tremendous interest in fishing among the Poles, though their equipment is rather basic. They were amazed at the array of deluxe tackle in his king-sized tackle box as well as in the replica of a typical American tackle shop, set up in the U. S. Section. The casting demonstrations drew tremendous crowds and were rated the most popular attraction at the Fair.

To quote Leon, "In preparing for the exhibit, I assembled rods, reels, lures and lines produced by some 25 different American manufacturers, so as to provide a representative assortment.

The response was overwhelming—both to the display of equipment and the demonstrations. Unfortunately, recreational activities in Poland are rather limited by our standards—but fishing is something they are able to do and I found that most of the Polish men are avid anglers. Because they do not have access to much variety of equipment they found it difficult to believe that there could be such wonderful things for fishing as we showed them.

It was a most interesting and fascinating personal experience, and I'm sure that we were successful in leaving with the Poles a favorable image of America's #1 participant sport—fishing. Incidentally, it's great to be back so I can do some 'participating.'"

IRON CURTAIN NOTES . . . Two small Polish boys, when advised that Leon was an American, pointed to his belt and asked through an interpreter "where are his guns?" . . . After one of his casting demonstrations Leon was presented with a bouquet of flowers, an honor usually reserved for performing artists in the world of music and the arts. . . Leon said that if he could just get the rubber stamp concession behind the Curtain he would be in clover. It seems that nothing happens there until at least five different people rubber stamp a piece of paper. . . . When we quizzed Leon about his reaction to the Iron Curtain he came up with, "May it rust in peace!"



NEW OFFICERS elected at Pennsylvania Outdoor Writers fall meeting held in Williamsport, (I-r) Bob Reed, treasurer; Mark Passoro, president; Will Johns, director; Roger Latham, past president; Francis Kemp, director; and Bob Parlaman, director.

DR. WILBAR ELECTED CHAIRMAN OF POTOMAC RIVER BASIN COMMISSION

Dr. C. L. Wilbar, Jr., State Health Secretary and Sanitary Water Board chairman, has been elected chairman of the Interstate Commission on the Potomac River Basin. He was elected at the Commission's recent meeting in Washington, D. C.

The Commission, established in 1940, coordinates water resources management and pollution control activities in the Basin, which includes portions of Pennsylvania, Maryland, Virginia, West Virginia, and the District of Columbia.

Pennsylvania members of the Commission, and their alternates, are: Dr. Wilbar (alternate: Walter A. Lyon, director, Division of Sanitary Engineering, Pennsylvania Department of Health); Dr. Maurice K. Goddard, Secretary of Forests and Waters (alternate: Alan J. Sommerville, chief engineer, Water Resource Development, Department of Forests and Waters); and the Hon. Harold B. Rudisill, of Hanover, representing the 4th District of York County (alternate: the Hon. Stanley H. Gross, of Manchester, representing the 2nd District of York County).

Commission Employe Killed in Tractor Accident

Donald Frank Clapper, Huntsdale, Pa., a Fish Culturist Assistant for the Pennsylvania Fish Commission, was killed recently when the tractor he was operating overturned, crushing him. He was 34 years old.

He was a member of the Huntsdale Brethren Church and a veteran of the Korean War. He is survived by his father, Russell C. Clapper, Carlisle; his mother, Mrs. Catherine Bryan, Chambersburg, and a brother, Kenneth R. Clapper of Wilmington, Del.

Leisure may prove to be a curse rather than a blessing, unless education teaches a flippant world that leisure is not a synonym for entertainment.

Only through the youth of today is a better tomorrow possible.

NOVEMBER-1963



BROWN TROUT, a 25-inch, seven LITTLE GUY - BIG BASS, pound beaut, caught by John Galley, Hawk Run, Pa., from Logan Branch, Cen- inchers caught by 7-yeartre County, July 17 on a nightcrawler. old Norman Linn in the



smallmouths, 14 and 16 Juniata River near Newton-Hamilton on softshell



MUSKY EXPERT, 13-year-old Greg Marsh, Corry, Pa., caught this 34incher at Canadohta Lake last July 3.



FARM POND LUNKER, a 17incher, caught by 61/2-year-old Douglas Bowman from a farm pond owned by his parents at Lacyville, R. D. 1. The Pennsylvania Angler subscription his parents gave him last Christmas might have helped his angling techniques.



NICE BASS from Lake Erie caught by Harry Allaman at the outdoor writers convention in Erie the past summer.

THE **BLACK SPIDER**



DISCOVERED the effectiveness of the Black Spider quite by accident. It was one of those mid-August mornings when the streams were reduced in volume; the sun gave promise of high temperatures even in the shaded mountain valley where I was fishing. It is a fact that vacations do not always coinside with the best fishing conditions. The portion of the stream was fast flowing with plenty of pocket water where the oxygen content might keep trout fairly comfortable. The only insect life visible were midges that swarmed in the shallows.

For two hours I tried for a rise, beginning with the smaller patterns and working through the two boxes that form my normal supply. Two years before I had tied a half dozen Black Spiders that had never been tried. They were tied on No. 16 short-shanked hooks, with stiff sparse hackle and tail, bodies were of black ostrich herl; about the diameter of a five-cent piece. I looked at them dubiously then decided to try one.

Gradually I lengthened my leader by adding finer and finer tippets until by now over ten feet of it tapered to five X. To this I attached a spider but had some difficulty in casting due to the air resistance. Finally after several efforts it fell in the center of a run that led to a still pocket and came floating down, dancing high on its hackles and occasionally skating a bit as if touched by some magic of its own. I was lost in the pleasure of watching it when suddenly it was gonc. I raised the rod sharply and a brown trout of about ten inches vaulted into the air.

The balance of the day enough trout showed interest to make enjoyable sport. The highlight of the day came in a picture pool, set in the deep shade of cool hemlocks. The water was deep and still. The fly floated with barely a perceptible motion. A trout darted up and took the fly with such speed that his rise carried him a full length above the water. He was over a pound in weight, perfectly conditioned and one of the most beautifully colored trout I have ever seen.

The sparse stiff hackles used in the construction of this fly make it especially effective on still, low water. Trout do not always take it. Sometimes they jump over it, splash it with their tails or fall on it. These acrobatics are fun to watch but the percentage of hooked fish, when they are in this mood is small. Sometimes they can be teased into striking by gently moving the fly in imitation of an insect about to take off. This method produces some spectacular rises but coming as they do against a taunt leader the angler must use a gentle touch to save his terminal tackle.

Occasionally the fly is cast diagonally down and across and deliberately dragged across current. This is highly unorthodox but it sometimes saves the day.

-ALBERT G. SHIMMEL



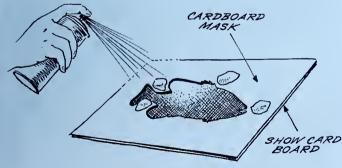
A Monthly Feature For Young Anglers

A TROPHY FOR YOUR WALL

AST month I told you to keep a nice specimen of a bass, trout, or panfish, and trace its outline on a piece of wraping paper. This, I stated, is the first step in making a trophy to hang in your room.

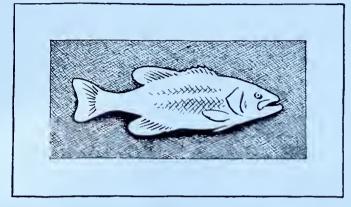
If you've done this the next step is to transfer this tracing to a piece of cardboard—a discarded poster is ideal. Do this by blackening the back of the tracing directly beneath the outline with a soft pencil. By holding it upside down against a windowpane you can mark the approximate location of the outline revealed by the light shining through the paper. Now lay the tracing, blackened side down, on the cardboard and go over the outline with your pencil. Bear down fairly hard and don't let the paper move.

Now you have a drawing of your fish on the cardboard. Carefully cut out the fish. A small, sharp knife is best for this purpose if you are skillful enough, but scissors can be used if you first cut out the center of the body and then carefully snip out the cardboard right up to the line. Be particularly careful around the fins. Do not cut outside the outline.



The cardboard with a fish shaped hole in it is used as a mask or stencil. On a calm day take it outside and place it on a piece of show card board. The latter should be a rich, deep color such as deep red, maroon, brown, dark green or black. The cut-out edge of the mask should fit against the show card board. If any of the corners refuse to lie flat place small stones or lead sinkers on them. Newspapers spread out around the board will prevent making a mess.

Tilt the board as far as you dare without dislodging the weights and prop it in that position. Now, with a pressure can of gold paint spray the show card board. Follow the directions on the can, applying only light coats



so the color will not run and permitting the paint to dry between coats. When the board is completely covered and the paint dry lift off the mask. If you've done everything correctly the result will be a handsome gilded fish on a colorful background.

If you are artistically inclined you can sketch in an eye, gill, scales, and fin rays with a black crayon. This looks better if done in a sketchy manner, as shown in the drawing.

You can either frame your fish like a picture or glue it to a larger board of a different color or material. A picture wire or a glue-on picture hanger will almost complete the job. The last task is the pleasant one—writing your name, the fish's length and weight, and place caught on the background or cardboard "frame."

Now even in the middle of winter you can admire the nice fish you caught in the late summer of 1963. I hope it's a dandy.

COLD WEATHER BASS

BASS can be caught in November. If the weather has been fairly warm they'll hit plugs, jigs, and plastic worms, but these must be fished slowly and right on the bottom.

If the weather has turned cold, as it usually does this month, the water will be cold, too, and the fish will move like the proverbial snail. It's hard to work plugs slowly enough to suit them. Plastic worms are easier to handle. More sure-fire than any artificial lure under these conditions are live minnows. These are hooked through the back (don't jab the backbone) or through the lips and fished just off the bottom. For stream bass try the biggest, deepest holes. In farm ponds fish the deepest part, too. The strike won't usually be the smashing variety you experience in warmer weather. The fish won't fight as well, either, but at least you'll be fishing, and that's always fun.

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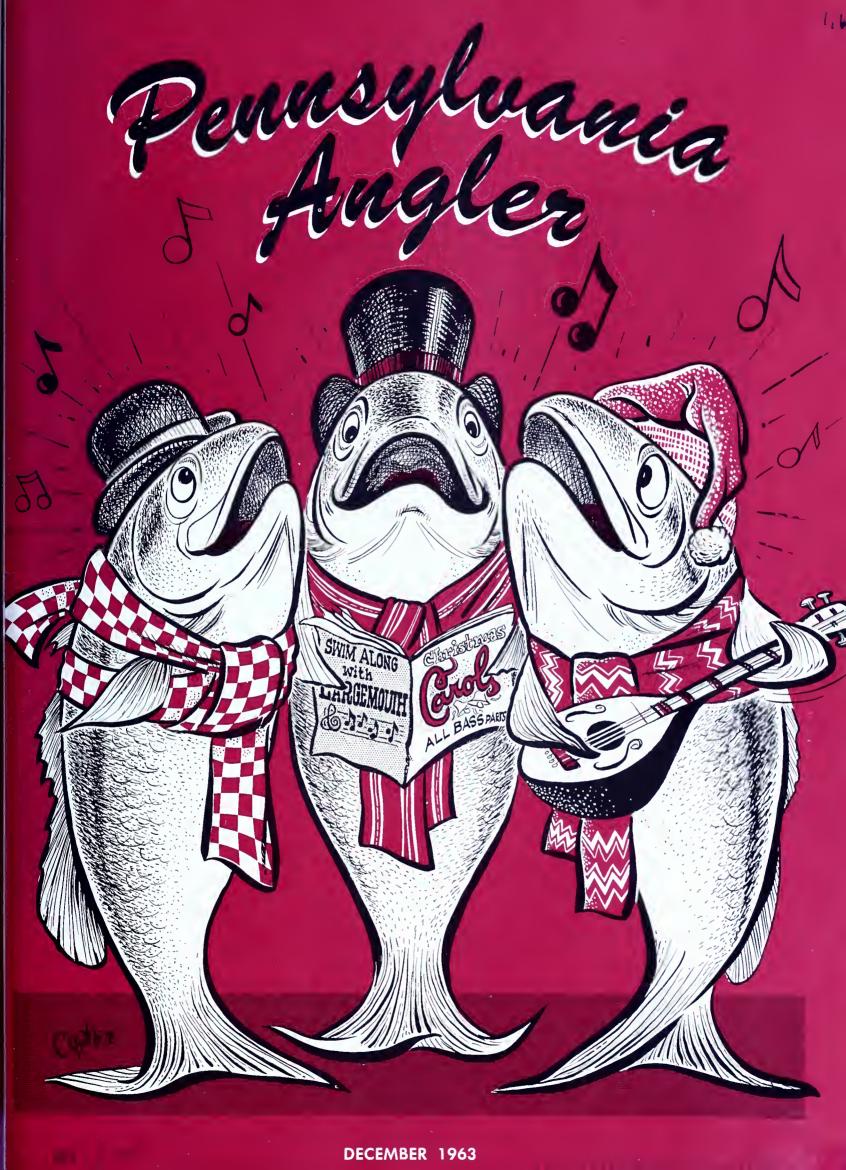
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DECEMBER, 1963



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GEORGE W. FORREST, Editor

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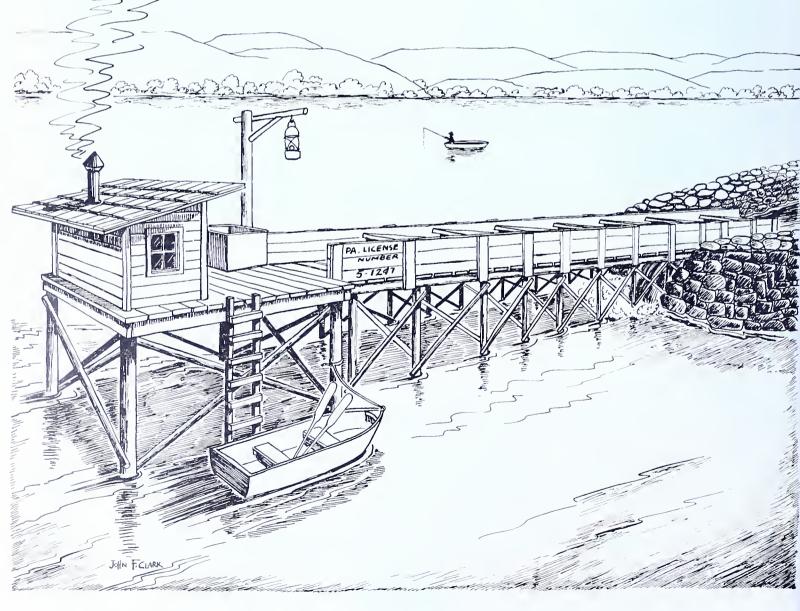
NOTICE: Subscriptions received and processed after the 10th of each month will begin with the second month following.



Fish Pots

By JOHN M. HERSHOUR

Art By JOHN F. CLARK



N THE days before the power dams were built, there were hundreds of fish pots in the Susquehanna River. They were called fish weirs, eel racks and eel pots in the Delaware River, but always fish pots in the Susquehanna. The Vee walls of scattered stones can still be seen when the water is low.

The inventor of the fish pot is not known. It is thought the Indians had a device made from poles and brush and the white man improved upon their method. Whatever the name or design there never was anything that could equal them for so little outlay of money.

Nearly every farmer who owned land fronting the river had a fish pot or two. When a pot was built adjacent to his land it became his personal property as long as he maintained it in a fishing condition. Often fish pot owners, when they made their wills, bequeathed their fish pots to their sons, sometimes with the stipulation that their mothers be given fish if any were caught.

Back in early part of this century, Pennsylvania passed a law prohibiting the sale of game fish caught in fish pots, and later that all pots must be licensed. The fee was \$1.00 per year and a number and regulation came with the license; the number to be painted or stenciled on both sides in plain view so the fish pot inspector could OK it if lawful. They had the authority to destroy pots that were unlawfully built. No game fish could be kept. A removable section of each grid was required so all fish could fall through to the river beneath the pot when the licensed owner was not in attendance.

The pot inspectors were fish wardens. The name "inspector" was pinned on them by the river men and there was little love for the inspectors. They carried an ax to chop out illegal pots. The river was full of game fish, the loss of sale was a hard blow. The river men retaliated by setting their boats adrift when they had the chance. More than one "inspector" was forced to swim ashore or stay and starve on the island.

The unrestricted sale of food fish, such as eels, catfish, rockfish, mullet, carp, suckers, white and yellow perch made pot fishing profitable for home use and city markets.

Sites and Construction

The first requirement of a good fish pot was a good site. Many such places were still available. If a pot builder could find an old abandoned fish pot he was in luck. The pot had to show signs it had been deserted for a long time and almost completely destroyed. He could then lay claim to the site. He had to start at once to make known his intention of claiming the site. Many a hot argument took place over an abandoned site. Long range shot gun wars were in vogue until one party finally quit the place.

Another good site was where two long islands paralleled each other. The water had to be swift and shallow. The long islands formed barriers which the fish followed on their migration down river. Shorter wingwalls could be built at this kind of a site. This is where we will return to yesteryear and reconstruct the fish pot.

The first part of the construction is the carriage poles. We cut them in the woods. They must be straight tapering poles, 40 ft. long, approximately 12 in. in diameter at the butt and 6 in. at small end. The top and outside of each pole is hewn to a flat surface with a broad ax. Notches 1 in. deep are cut for the 2" x 6" that will carry the risers and the grids (sometimes called gratings), mostly "girds" in fish pot parlance. Our pot will be 4 ft. wide. There

will be five falls, so we cut the $2" \times 6"$ in 4 ft. lengths. The poles are laid parallel and the $2" \times 6"$ spiked in the notches. Notches are also cut on the underside of the poles for the shores. There will be five on each side. The $2" \times 10"$ risers are cut and spiked to the $2" \times 6"$. They are on edge and look like a stair riser.

Saw mills along the river stocked fish pot lumber. It is rough sawn white oak, longest lasting in water for fish pots. The grid strips are spaced 1 in. apart. They are nailed to the $2'' \times 6''$ and the risers 6 inches overhang the riser.

Underneath the overhanging grid strips down to the next grid is called the trap or pocket where the fish coming in the pot are trapped.

The shores are round white oak logs, 6 in. in diameter. This will be all we can do in framing the pot. The shores will be cut when the pot is set out at the site.

Meanwhile, out at the site, two boys have been drilling holes in a rock on the river bed. They have by-passed most of the water with boards and rocks. A template is made of the rock holes and corresponding holes are drilled through the logs. We are lucky to find some brake draw rods from a wrecked freight car. They are cut the right length and put in the log holes.

Now all hands with a lot of "heave-ho's" get the framed pot on a shad net scow. It nearly sinks from the weight.

Finally, after dragging bottom several times, we get the pot out to the site. It is eased off the scow so the butt ends of poles will be near the holes in the rock. With a lot of maneuvering the rods in the logs slip in the rock holes.

The pot is now safely anchored. We now make the butt end level. We go to the small end of carriage poler. With the aid of a stout pole for a lever, we raise the pot, using a temporary frame to carry the weight until the shores are in place.

When the pot is in right elevation it is leveled and the shores put in place. A footing is made using Peach Bottom slate on the uneven river bottom for each shore. The length is taken with a rod for each shore and they are toe spiked to the carriage poles.

The shores are braced diagonally and horizontal. Lumber is not spared in the bracing.

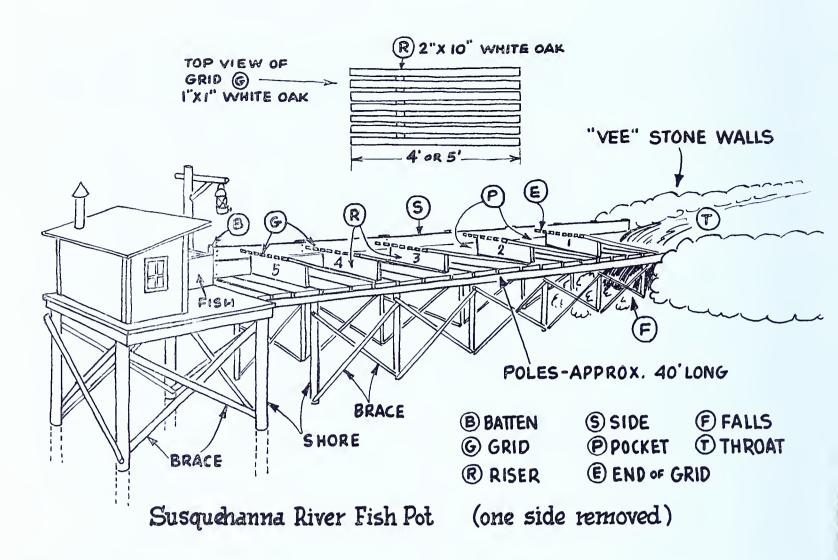
Rocks are placed between the butt ends of carriage poles. They are laid as solidily as possible. Crevices are chinked with smaller stones to help strengthen the pot. About 10 ft. of the poles extend under the water, $2'' \times 6''$ are notched in and a tight plank throat or lead is laid. This forms the first fall and a slick water course through the throat.

Walls and Dam

We now start building the *Vce* walls that will back the water until it flows over the first fall in the pot. Heavy rocks are placed on the down stream side that buttress the smaller rocks. Rocks and stones are gathered from the river bed and when they become scarce, the shad scow is used. It is decked over with planks to make easy loading and dumping along the walls.

Much time is consumed in building the walls for it is heavy, hard work. We are thoroughly wet continually while building the walls.

As we near the pot the walls are higher and wider. There is no attempt to lay them tight. Water trickles through everywhere if they were laid too tight because they would soon burst from the pressure. Their primary



SKETCH shows one side elevation sufficient to denote how it worked. The long poles are the carriage logs to support the grids (G) and risers (R). The risers are 2x10-inch white oak. Grids are 1x1 inch white oak. Poles are 40 feet long white oak. Grids may be any width according to width desired. They are 34-inch apart and 4-5 feet long. The water pouring over falls marked (F) sieves through the grids. Fish are carried by the swift water through the throat (T) to fall over the ends of the grids (E). There is no escape from pocket (P). When the river is rising fishing adjusted to (2-3-4-5- etc.); when water ran over shanty platform the pot was drowned out. Sideboards are marked (S) and their battens (B). The bracing and shoring all of white oak. When operating the fish pot, the fisherman stood on the grids and raked the fish onto a higher grid with a heavy garden rake. They were placed in the fish box marked (FISH). The water was forced into the pot by the "V" stone walls or dams. The pots caught everything that came into the dams swimming or floating including eels, bass, salmon, perch, shad, herring, rockfish, mullet, suckers, catfish, carp, muskrats, otters, hell-benders plus many more odds and ends.

use is to lead the fish into the pot as they swim seeking a way on their migration down the river.

The wing walls finished, we watch the water as it slowly rises in the throat. It soon runs over the first fall and seives through the open grid to fall into the river beneath the pot. When the water is backed up river to a point where the level is five inches above the end of the first fall, the backing water has reached its limit. We have a five- or six-inch flow of water pouring like a little Niagara Falls into the pot. The fish pot is now fishing. Side boards are made about 2 ft. high. They prevent the fish from jumping out of the pot.

The Shanty

When a fish pot is a half mile or more from the shore, a shanty on the down stream end of the pot is necessary. It can be a mere box of boards or a neat 8' x 10' shanty.

A window for light and a door. A small cook stove serves for heat and cooking. Two joists are spiked level on the carriage logs. A plank floor is laid for strength and solidity.

There may be a couple bunks, a table and a few chairs. A tea kettle, a coffee pot and a skillet. An old clock ticking on a shelf makes the shanty more cheerful. We need some odds and ends in dishes and these are kept in a little cupboard. Some pieces of lumber grid strips, nails and a saw and hammer for repair work. The ax for chopping fire wood and some odds and ends in extra clothing completes the shanty furnishings. A fish box on the outside of the platform to store the fish.

Operating the Pot

When the fish pot starts fishing, it catches everything that swims or floats down the river. That is, everything that comes in the Vee dam. There generally is enough driftwood and lumber for fire wood. When the leaves start falling they drift into the pot and must be raked out; otherwise they would soon choke the pot and the water would back then pour over the walls. It keeps one man pretty busy raking out the fish and keeping the pot clean.

The fall months are the best time for fish pot fishing.

When the water becomes colder the migrating fish swim down the river. Not many fish are caught on their up river spawning runs.

Eels were the most plentiful of the migrating fish. They had a good sale value in the city markets. The smaller ones are called "grigs." They are salted and smoked for home use with some sale value also. The 50-lb. wooden candy buckets with wood covers made good containers for shipping eels. They were excellent for salted grigs and other fish. It was not unusual to catch 500 to 1000 lbs. of eels on a good eel fishing night.

The eels were raked from the wet fall to the next higher fall. Here they were placed in coarse hemp sacks. A strong garden rake was used to rake out the eels and drift stuff. The fisherman stood on the grids near the fishing fall.

A pot fisherman never knew what would come in the pot. Muskrats were common visitors. Otters sometimes came in the pots. And there were instances of drowned people floating into pots.

The white-belly catfish, migrating to spend the winter months in the Chesapeake Bay, were very plentiful. Mullet and suckers were of little value after the warm summer months. Those caught in the spring time, when full of roe and bones, were fair eating fish.

Carp, 40 lbs. and more, came lazily into the pots. There was a good market, and a favorite fish with the Jewish people. Striped bass, always "rock-fish" in the Chesapeake Bay and Susquehanna River, came lumbering into the pots. Busters up to 70 lbs. were common. They could knock a fisherman off his feet in their frantic effort to escape. They were tops in monetary value. Gars and lamprey eels were too plentiful and a nuisance.

The Susquehanna River at this time was noted for fine smallmouth bass fishing and not many were caught in the pots. When they were stopped by the wingwalls they jumped over them just like they did when caught in shad nets, jumped the cork lines.

The walleye, "Susquehanna Salmon" was the fisherman's favorite, not as gamey as bass but a better eating fish. When rivermen wrote of them, salmon was spelled "samon." Many were caught in the pots but it was not lawful to keep them. Yet plenty pot-caught "samon" graced the home dining table and the shanty skillet.

Sturgeon were the most despised and hated fish that swam in the Susquehanna River. Shad were becoming scarce and fishermen thought the sturgeon was destroying them. It was the same with the Chesapeake Bay shad netters. Others were at a loss to know why shad were no longer so plentiful knowing sturgeon do not destroy shad or any fish; their habits much like the carp and sucker rooting their food from the river bottom.

When a man-size sturgeon came thrashing into the pot, the fishermen lost no time leaving the pot. With their horny plates scraping the grids and side boards, the noise was terrific. A swipe of their boney tail could break a man's leg and knock him out of the pot. An old shot gun kept in the shanty for these tough customers, put the "quiet" on them.

The sturgeon was to become the most valuable fish in the river. Smoked sturgeon now retails for around \$1.90 per pound; caviar from the roe is beyond the reach of most of us. The pot fishermen, unwittingly killed and threw away the fish that, if allowed to multiply, would have in time, made them more money than any fish in the river.

The shad and herring after spawning, swam down the

river on their return to the sea. During the time they have been in fresh water, they have taken no food. Why are they caught by rod and reel fishermen using artificials, such as feather lures, bright spinners, spoons, jigs and beaded hooks? They have also been taken on bare bright hooks. Shad run mostly during the night, unless the water is cloudy and they lie in deep places. When anything goes by like a spinner, they snap at it, not because they need food, but because they just don't like anything buzzing around in their living room. Herring have much the same habit. Many are caught by fishermen using gold plated bare hooks.

After a shad or herring spawns, they are only scales, skin and bones. Rivermen call them spent shad and herring. The osprey fish hawks pass them up if meatier fish are found in the pots. Before, it was compulsory to leave open grids for the free passage of migrating fish. Countless numbers of shad and herring ended their seaward journey in the fish pots and no doubt they, and not the sturgeon, were the eause of shad becoming scarce.

Pickerel were plentiful in the quieter water at the head of the Chesapeake Bay but very few were caught in the fish pots. White and yellow perch were abundant. Yellow perch were sometimes ealled "ring" perch because of the color bands around them. "Yellow Ned" was another name, but whatever the name they were great favorites in the frying pan. Large river sunfish were also called "mocasins." They were beautiful in color, always willing to bite and a favorite with boys and girls; a sweet eating fish, now believed to be extinct.

Sale of Fish

At this time there was no artificial ice. Most farmers and fish pot owners had their own ice houses. The ice



FISHING WAS ON DECLINE long before power dams such as this one at Conowingo spanned and dammed the river. Dam-building era doomed migratory fishlife in the Susquehanna.



CLUSTER OF "V" WALLS still visible in the Susquehanna River. About 39 were in operation at one time between Wapwallopen and Nescopeck!

was cut in the winter months and packed in sawdust in the underground ice houses. If the weather was moderately cool, eels and catfish in wet sacks were still alive when they reached Baltimore markets. The fish were expressed on the early morning, down river train. The fish market never remained steady. Severe storms and floods sometimes stopped fishing for days. After the storm the first consignments brought higher prices. If a commission house returned \$.03 or \$.04 per pound less commission and expressage for 800 pounds of eels and mixed flsh, it was a good night's work. Farm labor was \$.75 to \$1.00 per day and board.

Maintenance and Perils on the River

When a fish pot was properly built, there was a minimum of repairs. When logs broke the grids, they were easily repaired with grid strips at hand. The shanty was knocked down in sections and bolted for quick dismantling. The shanty sections were then taken to shore on the shad scow. Ice floes played havoc with the wing walls. The rocks and stones were scattered like we see them today at the sites of river fish pots. When the water warmed in the spring time the walls were rebuilt. The rocks were now handy and in a few days the pot was again in fishing order. Our pot was set for a 40 inch rise in the river. At this height the water ran through the last grid at the shanty platform. When the water ran over the platform, the pot was drowned out. The river is now putting on her Sunday clothes, and it is time to go to the shore. The river is too high and too swift to pole the boat and we use the oars. We, on account of the swift current, have to row diagonally up stream in order to land at the boat landing. At this stage in the river it was best to wait until daylight. In the darkness there was the risk of being struck by a floating log or an uprooted tree, etc. It was easy to

get lost on a pitch dark night on the Susquehanna. The course out to the pot was marked with painted

poles anchored in the river, the white ends visible in the darkness. We had a white marker at the boat landing.

During the fishing season two men were in attendence at the pot. While one was occupied in keeping the pot clean, the other cooked meals and kept the shanty ship shape.

We often had visitors and they were given a mess of fish. The boys who helped us build the pot were given the privilege of fishing it and the money from the night's catch. They also got all the fish needed for home use.

Fish pot fishing never was monotonous and the owners fished their pots year after year. They never knew what would come in the pots and the expectancy kept them alert while on duty. It was very lonesome out there in the river standing in the pot under the rays of an oil lantern with the wraiths of fog swirling around.

There were tales of a headless boatman and other bloodchilling weird stories. Most pot fishermen were mortally afraid of Hell Benders for their bite was thought to be fatal. They are as harmless as an old toad and just as ugly.

The fish pots lying out in the river were picturesque, especially if they were far out. They looked like a boat slowly chugging up the river. The hawks and buzzards sitting on the side boards awaiting the thin easy pickings,

looked like people at the boat rail.

Fish pots now are only memories in nostalgia. Concrete barriers have stopped all migrating fish. But, with new engineering techniques, new progress in the biological sciences, as put forth in the Bell & Holmes reports to the Pennsylvania Fish Commission, the runs of shad and eels and other species, may again be realities of the near future. And, wouldn't I be astonished to find fishermen searching for this article on how we built and operated fish pots way back when. . . .

Memorable Event of Yesteryear When I Was

Guide For A Day



By WILBERT NATHAN SAVAGE

T was just a little shy of four A. M. when Pa shook me and brushed his big rough hands down over my face.

"High time to be up and at 'em," he said, and I squirmed at the monotonous reference to those dreadful morning chores. But before I could manage the usual sigh and grumbling appraisal of farm-life hardships, Pa went on: "A Mister Duke Hannigan and his crony from the city got here in the night. Said they wanted me to guide them to the best fishing on Little Bear Creek. I told them I'd be busy with a wagon trip to town, but that I got a mighty smart boy that knows every inch of Little Bear. . . ."

Ma was up and had things smelling mighty good in the kitchen. I wanted to tackle the corn cakes and bacon right off, but Pa allowed I'd better do my work at the barn first. So I lit the old lantern and made off to feed the horses and cows and yearling stock. Still half asleep, as a boy is apt to be at that time in the morning, I bumped my head so hard against a beam that I saw stars of all colors and sizes.

"Duke Hannigan!" I said, like I meant it to be a cuss word.

It was light enough to see without a lantern when I finished my chores. I hustled up the path toward the kitchen door, sniffing the aroma of coffee, corn cakes and home-smoked bacon. Hungry as a bear fresh out of hibernation, I thumped into the kitchen, dabbled my fingers in the washbasin, and was ready to make a swipe at Ma's clean towel when Pa appeared in the doorway between kitchen and dining room and made a motion that slowed me down. Then he cleared his throat and said, "Boy, come in and meet Mr. Hannigan and his friend, Mr. Robertson."

I dried my hands, stepped into the room, and said, "Howdy." Both men got up and shook hands with me and said I was a husky lad. Pa gave me a glance then that told me I'd said enough, and maybe too much, so I found a splint-bottom and sat down to do a heap of listening and no talking.

As I sat there in a dark corner, with my hungry stomach making like a cornstalk fiddle, I sized up both men.

The one Pa called Mr. Hannigan was short and fat, with

a bull's neck if I ever saw one—and I have. About fifty-five I suppose he was, and right jolly and a good talker. He wore fancy clothes and always seemed to move just right to make his loose pocket change jingle nicely. He wore glasses with gold rims and had the general appearance of men I'd seen at the County Seat which Pa called "no-account politicians."

The other man, Mr. Robertson, was a wizened little fellow with no hair at all on top of his head and very little along the sides. He wore glasses too. Ma, who was frightfully accurate in figuring people out, said he was the scholarly type and she pegged him as a school teacher. Later, I learned she was right.

After what seemed hours the men got up from the table and Ma started the job of baking corn cakes for me. Pa kept hurrying Mr. Hannigan, telling him the best fishing would be early in the morning. I was working on my seventh corn cake when Pa said I'd better help him load a grist of grain to be dropped off at the old water-powered grist mill in the edge of town. By the time I got that done, both men showed readiness to hit the trail toward Little Bear—which meant that I didn't get to finish my breakfast.

It isn't far from our place to good fishing on Little Bear. But much of the going is steep. I didn't mind it a whit, and Mr. Robertson hummed along tolerable well; but Mr. Hannigan wheezed and puffed and kept so near out of breath that he finally gave up trying to give me the details about Pa working for him years before. He said Pa moved away and he hadn't heard of him 'til lately. While Hannigan gasped for his breath on an extra steep part of the hill, Mr. Robertson took over and explained that they'd heard about Little Bear through a friend who knew Pa because he'd helped him track down a crippled deer a few years back.

Well, we finally got to the top of the hill and I asked Hannigan if they'd like to go by way of a short-cut. Robertson nodded and Hannigan said they would. So I took them down a narrow path through a young locust grove and across a flat covered with scrub wild cherry trees and enough thorns and rip-shins to make both men



mutter to themselves and wish aloud that they would have been satisfied to stick to boat fishing, Chesapeake Bay style. I kept account of the times they tripped and fell and when we got to the first fishing hole I had four notches cut for Hannigan on a stick I was whittling, and one for Robertson.

"What a beautiful amber stream," Mr. Robertson said when he caught first glimpse of Little Bear.

"Just like pictures we've seen of mountain trout streams, Harry," Hannigan grinned, and I knew then for the first time that Mr. Robertson's first name was Harry.

"You mean neither of you've ever seen a real trout stream?" I felt sort of nosey so I asked the question just as it popped into my mind.

Mr. Robertson turned to me and said, "You see, Sonny, we've spent our lives on the Eastern Shore, and we've never really journeyed back in the mountains, just as many of you hill-country folk have never been down our way."

I knew by his manner that I had rubbed him the wrong way, so I changed the subject and told Hannigan how

Pa and I usually fished Little Bear.

"Here in the glade is a good place to start," I said.

"There are a lot of deep holes before we hit rough water a mile downstream. After we get to rough water we can fish on down a mile or so and hit an old logroad that'll take us toward home."

Well sir, I saw right off that the trout would be in for a good day. Hannigan wasn't used to wriggling through dense streamside thickets, dropping his hook in the water wherever there was a spot free from foamy clutter and overhanging brush and submerged logs peppered with snaggy limbs. Robertson looked puzzled and said the stream was lovely, but expressed his doubts that God ever intended that man should cast a hook in it.

Finally both men were baited up and such threshing through alder bushes I never witnessed before or since. First it would be Robertson who'd have his hook fast—sometimes in the water, sometimes out—and then Hannigan. Robertson said a lot of witty things and muttered to himself a good deal without use of actual cuss words. But Hannigan got fiercely prefane and got off a few city specials that I hadn't heard before.

Boys my age, fourteen then, usually don't get very sentimental about anything, but my heart truly ached for those two gentlemen. I didn't want them to think I was being smart-alecky, so I never told them it wasn't wise to go thundering along the edge of the stream like a beserk water buffalo. Mountain brook trout are wild critters, and

they have plenty of savvy, but you'd have thought my charges were after pond carp just taken down with lumbago.

Robertson did manage to land one nine-inch beauty, and just as we were coming into the rough water Hannigan snagged a honey. It broke water like a Jack-in-the-box and I calculate it must have been a one-footer at least. It darted this way and that and finally it shot like a red-speckled bullet beneath the roots of an old crooked maple that stuck down in the water like the legs of a spider. There was a swirl of foam, a flash that sent a thrill up my spine, and the trout was gone!

A few minutes later Robertson hauled out a nice brookie, only to have it flop off the hook and land in the shore muck. He dived, plunged wrist-deep in the brown mud, and saw the trout playfully flip into the water and dart away. While Robertson was tuning up with his first cuss words of the day, Hannigan snagged a medium-sized trout and started to fight it while half tangled in a mass of wild creekbank vines. He wound up—and I mean wound up!—on his belly in the creek and the trout easily gained freedom.

That did it. Hannigan, whose line was snarled pitifully among the roots of a black birch, bellowed, "To hell with the rough water!" He broke his line like Ma breaks sewing thread and ordered me to start toeing it toward home.

"I told you this morning that my 'Guide For The Out-doorsman' had today listed as a bad day to fish. That little red book is a gem," Robertson commented.

"Aw, you and your little red book!" Hannigan scoffed. "One would think, to hear you talk, that it's an all-purpose volume."

"It does treat on a variety of subjects, and I think it is thoroughly reliable," Robertson shot back.

Both men were silent then, and the journey home seemed extra long to me because everything was so uncomfortably still.

A little before noon we arrived back home. Hannigan was in such a huff that he ate scarcely a bite of dinner. Robertson did a sight better, and me—well, Ma said afterward that she was out-and-out ashamed of my appetite.

Pa got back from town about the middle of the afternoon. He said I was a good boy and was willing and meant well, but allowed that I probably couldn't guide a pig to water. He apologized to the men for my shortcomings and said he'd show them a day they'd never forget if they'd lay over 'til the morrow. Hannigan didn't seem struck with the idea, but I noticed that he and Robertson got their heads together during late afternoon and it was plain that they planned to test their luck under Pa's supervision.

Our guests slept in the room next to mine. I went to bed early and so did they. I wasn't sleepy or tired, but I didn't want Pa squabbling at me. I was as wide awake as a boy can be when I heard Hannigan blow out the little kerosene lamp and hop in bed.

I suppose it was half an hour after that when I heard Hannigan ask Robertson if he was still awake.

"Yes, I am," Robertson answered. "I'm just too fatigued to sleep."

"I itch," Hannigan yawned. "I could go to sleep in a second, but my neck feels like it's on fire and my wrists burn like blazes."

"Brier scratches maybe. That brat dragged us through some outlandish places—purposely, I'd venture to say."

Everything was still for a minute or two. Then Han-

nigan said: "Blast the luck! I've got to get up and see what's eausing this irritation."

I heard Hannigan get up, scratch a match on the floor, and the lamp showed a sliver of light out on the yard.

"See anything?" Robertson asked.
"Nothing much," Hannigan replied. "My wrists are a little red." Then he asked Robertson if he could see anything on his neck.

"Great Guns!" Robertson sputtered. "I can identify that at once, Duke. You've got yourself a case of poison

"Poison ivy!" Hannigan spewed out the words like they were too hot to hold. "I never saw any poison ivy today."

"Would you know it if you saw it?" Robertson inquired. "Guess I wouldn't," Hannigan admitted. I remembered ducking some vines climbing up a basswood, and another tangle on a small locust sapling.

"Maybe it isn't poison ivy." Hannigan was trying to

"Why, it is. My little red book will prove it," declared Robertson.

"Aw, what the tarnation does your red book know about such things?" Hannigan growled.

I heard Robertson get up and I knew he must be getting

his glasses and his trusty book.

"Now here," I heard him say, "under the heading 'Outdoor Hazards' it reads: 'Poison ivy is an ever-dangerous shrub. It holds in abhorrence the touch of every human being. It may be found growing as far west as eastern Texas, eastern Kansas and Minnesota.'"

Robertson stopped to clear his throat and Hannigan put in: "I'll bet the guy who wrote that thing didn't know

outdoors from in.

Ignoring the dig, Robertson went on: "If a susceptible person contracts poison ivy, inflammation and swelling usually appear in twelve to twenty-four hours. The early symptoms are accompained by intense irritation, followed by the formation of vesicles or blisters. . . . '"

"Shut that damned book, Harry, and look at the back of my neck again!" Hannigan stormed so loud that I was

sure he'd stir Ma and Pa right out of their bed.

"Now take it easy, Duke. Getting excited will only increase the irritation," Robertson warned. "I can look at your neck, but just staring at it won't help."

"Then what will?" Hannigan fumed. "What does that

worthless red novel say?"

After a short period of mumbling, Robertson red from the book and said the application of baking soda and Epsom salts generally relieves the pain and itching.

"It says here," Robertson continued, "that 'fluid extract of Grindelia, diluted with six-ten parts of water, may be applied . . . other remedies have been tried with success, including a local application of five per cent solution of potassium permanganate; but if a bad case of poison ivy exists it is usually desirable to consult a physician. . . .

"Physician be hanged!" Hannigan rumbled. "Hot water. Baking soda. That's what it'll have to be in this God-

forsaken place!"

Well sir, the rest of the night was an uproar. Hannigan hollered Pa and Ma out of bed and had Ma make up a fire to heat water. Pa poured warm soda water on Hannigan throughout the night. I slept little, what with Hannigan going on about not learning to recognize poison ivy and Robertson trying to put in with passages from his little

Sometime in the night Hannigan yelled to Robertson,

"How the tarnation can a fellow tell what the stuff is? See if that's in your scandalous red book!"

"It's right here on page one eighty-three," Robertson was quick to reply. "Quote 'Poison ivy resembles no other plant. It is very often confused with the harmless Virginia creeper, or woodbine, but the two are quite dissimilar. The Virginia creeper is a stronger, larger vine; it has five leaflets instead of three, climbs by tendrils instead of aerial rootlets, and the clusters of berrics are dark blue instead of waxy white.'

"The next paragraph points out that 'Poison ivy is not always a creeping vine. Sometimes it assumes an upright

position,"—

"And usually kills fat people like me," Hannigan interrupted. Robertson started to read again, but Hannigan bellowed, "Yes, yes, blah, blah. Read no more from your precious volume, Mr. Robertson. Tell me the time instead."

"Three-thirty," Robertson grunted.

Everything was pretty still after that, except when Pa would ask a question or offer some advice.

I didn't get up 'til eight the next morning, and even then I felt mighty owl-eyed. While I was stowing away corn cakes and maple syrup Pa came tearing into the kitchen with old Doctor Reynolds trotting at his heels.

"Follow me. The patient's upstairs," Pa instructed the

Curiosity caused me to grudgingly leave breakfast and tip-toe after them. At the top of the stairs I stopped. Pa was saying: "It's sure your lucky day, Duke. Doc Reynolds was just heading out to see Becky Walton's young one when I hailed him."

Pa forgot to tell Doc who was who, but Robertson took care of things by introducing himself and then he asked

Doc to meet the patient.

"Darned if there isn't a copy of 'Guide For The Outdoorsman,'" I heard Doc say. Then he added: "A mighty good and authoritative book. I own a copy myself."

"You-you mean that—that thing—that red book there on the dresser?" Hannigan stammered in an exasperated tone.

"Yep," Doc confirmed.

Doc's curtness must have riled Hannigan for he kept as still as a scared mouse. Then Doc began to give advice and it didn't sound half-way interesting, so I eased back downstairs to finish off the stack of corn cakes.

When Pa and Doc came downstairs I heard Pa say, "Yes sir, Doc. They'll be ready when you come back from Becky's. It'll save 'em taxi fare and anyway Hannigan'll be better off at the hotel where you can straighten him

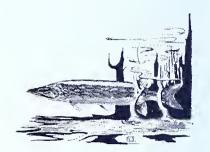
up in a day or so.'

In an hour Doc honked his horn and Hannigan walked heavily down the stairs and past me with his luggage. He looked straight ahead, acting as if it was my fault that he had a hot dose of poison ivy. Robertson strode past me too, and said never a word. They even acted sore at Ma and Pa.

There they go, I thought, as Doc drove away. And they're madder than Aunt Hannah's tied-up bulldog. But I never did a thing to those city gents. And that's honest-Injun truth.



From the Fish's Viewpoint



By EUGENE R. SLATICK

ISHING is, for the most part, the art of catching the attentions of a fish and then (sometimes) catching the fish itself. As any angler knows, fish are taken on bait that ranges from delicate flies to shiny metal spinners, not to mention the common worm. Such an undiscriminating (and often fatal) diet can be blamed on a fish's eyesight—but only up to a point. Fish can see better than some anglers think.

By our standards fish are nearsighted. Some fish can see fairly well up to about 50 feet in clear water, but the best vision of most fish doesn't extend much farther than about 12 feet. In general, most of a fish's attention is given to objects nearby. But even though they are short-sighted, fish are very quick to detect movement—whether it is another fish, a moving plug, or a fisherman's shadow on the water.

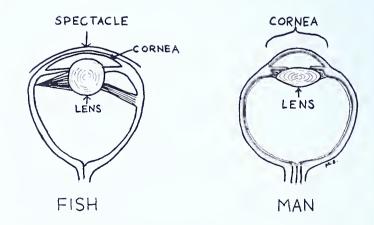
There isn't much that can escape a fish's eye if the water is clear. The fish's streamlined body gives its slightly protruding eyes an almost unobstructed field of view all around. A fish's two blind spots—right in front of its head and at the rear—are easily brought into view by a little maneuvering of its body. Because of the position of its eyes, a fish can look in two directions at the same time. But when its sees a moving object the fish turns and faces the object and watches it with both eyes. Although the fish can look at an object with both eyes, it doesn't get a 3 dimensional effect.

Fish have no eyelids, so their eyes can't close. This has some advantages. For one thing, the fish's eyes are constantly ready to detect movement. (Some scientists, however, think that fish may be able to switch off their vision and "sleep" with their eyes open.) And for another, it helps keep the fish camouflaged because the amount of light that enters the eye has a direct influence on the pigments in the fish's skin. A fish's color will darken on a dark background and lighten on a light background. This doesn't mean that the fish knows that it is changing colors, or that is is even aware of the background color; the whole process is more of an automatic reflex.

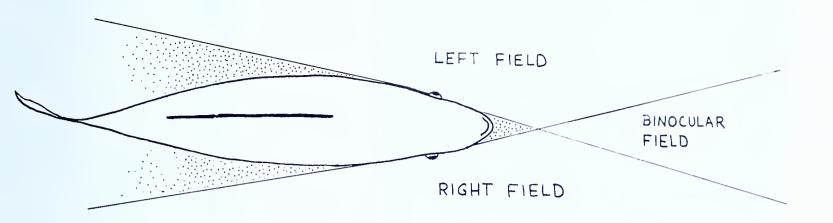
Can fish see color? This question can trigger a lot of arguments. In experiments minnows and some other fish behaved as though they could distinguish colors. Some fishermen would swear that fish can see color. As if to console fishermen, some scientists (probably those who are fishermen) say this: it hasn't been proved that fish can't see colors!

Assuming that fish can see color, how important is it to them? Look at it from the fish's viewpoint. A fish may be able to get a close look at a colorful wet fly, but a brightly colored dry fly would probably appear more like a silhouette. Even with the wet fly it may be the brightness rather than the color that attracts the fish. And if the water is muddy, or the fly is in deep water (which would tone down the colors), what *is it* that attracts the fish? Most scientists think it is the movement and the form.

When a fish looks up at the surface it sees a circle of light. If the water is clear and the surface is still, a fish can get a view of the outside world. Many fishermen think that a fish near the surface will see more of what's happening above water than a fish in deeper water. Actually, the reverse is true, assuming similar conditions, a fish in deep water has a larger "window" than the one near the surface. This is because a fish's vision is subject to refraction at the water's surface. And the outcome of this is that a fish's vision, as it looks out of water, is limited to an angle of about 98°. Outside that angle a fish's vision is reflected back into the water and it will see a reflection of the bottom—if the surface is still and the lighting is good. Since the angle remains the same whether the fish



ALTHOUGH FISH AND HUMAN EYES are basically the same, a fish's vision is restricted not only by the condition of the water it lives in, but also by a brain that is limited in its ability to analyze visual impressions from the eye.



IF FISH seem to be "all eyes" it's only because they have eyes that are located on the sides of their heads. This gives them a wide field of view. A fish's blind spots (shaded areas) can easly be brought into view by a little maneuvering of its body.

is near the surface or in deep water, the angle will cover more area for the deeper fish and give it a larger window. For example, a fish 2 feet below the surface has a window about 4 feet in diameter; a fish 5 feet deep would have a window about 11 feet in diameter; and a fish in 10 feet of water would have a window about 23 feet in diameter.

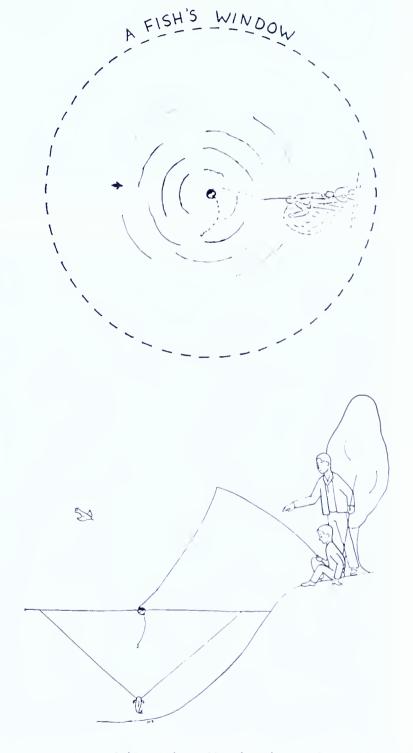
The clearest part of the window is the center. A fisherman sitting at the water's edge would appear as a small figure near the edge of the window. But if he stood up his image would suddenly move toward the center of the window and, in doing so, would become larger and clearer. It might appear to the fish that the fisherman was looming right overhead. No wonder a fish often darts away when a fisherman, tired of sitting, rises to stretch his legs.

It seems somewhat strange that water, a fish's "home," should interfere with a fish's vision so much. Water is a rather poor medium for vision even when it is clear, but when it is muddy it restricts a fish's vision to only a few inches. There are certain hours of the day when more light than usual is able to enter the water and it is during these periods that fish see best.

Compared to a man's eye, a fish eye is simple. Instead of producing an image by using both the cornea and the lens, a fish eye can only produce an image with the lens because the cornea is made optically ineffective by water. So the fish eye has a simple lens system, whereas a man's eye has a compound lens system. The "spectacles" that cover the eyes of some fish is only a transparent covering that protects the eyes from dirt in the water.

Since cameras are well known to fishermen, it might be a useful analogy to say that a fish eye is like a simple box camera and a human eye is like an expensive camera. In the hands of an expert photographer a box camera would perform quite well. But in the case of vision the "expert" is the brain. And the part of a fish's brain that handles vision isn't very well developed. So even if a fish had better eyes its brain probably couldn't handle visual impressions any better than it does now.

As we have seen, the world of a fish is a small one; the fish knows only its surroundings. It doesn't plan for tomorrow; and it hasn't been told about fishermen. So the next time you go fishing make your bait tempting enoughat least from a fish's viewpoint.



A FISH'S VIEW of the outside world is through a circular "window." The images that a fish sees are somewhat out of proporton and appear to hang over the water.



HO-HO-HO and a plug for Joe and a darn fine rod for Sam.



A ROD FOR COD or a bass or two and big tackle box tossed in.



Pe Merry O

Through the keyhole . . . to old codger lovingly fondle to warm the hearts of more on his 1963 Christmas list

Photo



uletide Angler

yourself . . . see that jolly y of fishing gear designed Illion Pennsylvania anglers

HINER



PLENTY IN STORE on the night before for an angler's Christmas morn.



A SHORT CAT-NAP with a rod on his lap and then on back to the Pole.



Boating

With Robert G. Miller

'VE often thought of sailing as an extremely dull sort of pastime not at all like power boating where, provided the engine is in good mechanical condition, all you have to do is yank the starter cord (unfortunately I've done this many a time and only succeeded in flooding the darn thing) or turn an ignition key and you're underway.

Sailing enthusiasts, on the other hand, hate the odor of gasoline and oil but need a breeze before they set out. Then, depending on the wind direction and where they plan to go, they may have to tack back and forth to get there.

This always seemed to be a lot of nonsense until last summer when I received an invitation, which was readily accepted, from Ed Schwoebli, of Camp Hill, to go for a sail in his 19 foot Lightning.

Ineidentally the Lightning is one of the most popular one-design sailboat elasses with, according to a publication issued by the National Assn. of Engine and Boat Manufacturers, Inc., a total of 313 fleets throughout the world involving some 6,000 active eraft.

Next in popularity would be the 16 foot Comet which has about 150 active fleets throughout the U. S. with about 4,000 boats in use; while the larger Star class, with an overall length of 22′ 8½″, claims about 4,000 numbered eraft and approximately 83 fleets in the U. S. and about 113 fleets scattered about elsewhere in the world.

Other popular elasses include the Moth, 4,000 craft and some 38 fleets; National I, 743 registered eraft; Thistle, about 1,250 of which 1,200 make up some 83 fleets in the U. S.; Highlander, about 275; and the Flying Dutchman, about 350.

Getting back, Ed was at the tiller, with two experienced erewmen handling the sails, so all I did was ride as a passenger ducking from port to starboard and getting in everyone's way (particularly Schwoebli's) as Ed brought her about on a tack. I found there just isn't quite room enough for two persons to squeeze between the tiller and centerboard trunk at the same time.

One niee thing about sailing is that you can talk to your neighbor without resorting to yelling above the roar of the engine. There seems to be always something to do, you've got to keep alert if it's a gusty day and you intend to take advantage of every puff of wind. Gone is the boredom you sometimes encounter in an outboard or inboard craft with nothing to do but guide it.

I also found, from Sehwoebli and other members of the elub, that sailing interest is on the increase. Some members have traded in their power rigs for one of the popu-



lar one-design sailing outfits previously mentioned and today, at least at the Susquehanna Yacht Club, sailboat owners far outnumber the outboard and inboard owners.

Part of this local interest is due to last summer's activities which included Saturday afternoon courses in sailing for the younger set in sailing prams and before long it wasn't unusual to see some pre-school youngster, bundled up in a life jacket, sailing alone threading his or her way between the mooring buoys off shore or engaged in a race with several other youngsters. Racing soon became a regular Saturday afternoon feature for the young folks, a good way to steer them from the TV set and get them out in the open.

Not only is the lower Susquehanna River, particularly the Lake Clarke area, becoming more and more a mecca for the canvas hoisters but I understand that Lake Wallenpaupack and Pymatuning Lake also are fast becoming sailing centers in Pennsylvania.

Why all the interest in sailing? I presume it is due to the fact a lot of folks like to get away from the noise and fumes of a gasoline engine, preferring instead something which will pit their natural talents and knowledge against the forces of wind and water. Another good reason would be the availability of small sailing rigs which offer the same experiences as the larger craft but at less expense.

A good example would be the inexpensive Sailfish and Sunfish rigs. Both look like surfboards, to which a mast, sail and tiller have been added, and together with sailing dinghys, catboats and prams offer that first taste of sailing which lingers and grows until you finally talk the first mate into buying something the entire family can enjoy.

These small craft can easily be transported by trailer, or on top of the family car or station wagon, fast gaining in popularity on the landlocked waters in many of our state parks. As proof we offer a recent report from the Department of Forests and Waters which shows an increase in sailboat tag sales last summer, by 50, over the 1962 sailing season. During 1962 a total of 336 tags were issued, while in 1963 this number jumped to 386.

The most popular area for sailing these small craft is the Gifford Pinchot State Park Lake, located a few miles northwest of York, off Rt. 177. Officials reported that during 1962 there were 197 tags issued there as compared to 234 this year.

Out in Bedford County the Shawnee State Park Lake, south of Rt. 30 near Schellsburg, accommodated 72 applications for tags last year, an increase of seven over the previous season.

The sale of tags more than doubled at the Prince Gallitzin State Park last season where 43 tags were issued as against 17 during 1962.

Holding steady was the Whipple Dam State Park, in Huntingdon County, with two tags sold each year; while a drop was reported at Cowans Gap State Park, Fulton County, with 31 tags issued during '62 compared to 15 last season. The Pine Grove Furnace Park, between Gettysburg and Carlisle, sold 20 tags this year as against 24 during 1962 perhaps due to the proximity of the Pinchot park waters.

This interest in sailing also gained a foothold this year at Pennsylvania State University where sailing instructions were added to the list of recreational activities and the response was "very good."

Three sailboats of the "Tech Dinghy" class were added to the 72-acre man made lake in the Stone Valley recreation area of the university, and instructions in the art of sailing were given students, members of the faculty and staff of the university.

At the close of the season reports indicated that more than 110 persons, including the general public, qualified as "skippers" under the direction of Dr. Fred M. Coombs, professor of physical education at PSU.

Aiding Dr. Coombs were several qualified graduate and undergraduate students at the university during their offtime hours.

Dr. Coombs said family participation in the program was "very good." In many instances a husband would take the course to qualify as a "skipper" and would later make use of this knowledge by taking his family on afternoon or evening trips around the lake.

As a result of the interest shown during the first year, Dr. Coombs expects the current fleet of three boats to be expanded next year with greater opportunities being offered in both instruction and sailing.

Sailing lessons were given several hours each Saturday and Sunday and those taking the course could qualify for two ratings—crewman or skipper. There was no charge for instruction, but a nominal hourly fee was charged those with the skipper rating when they began taking boats out on their own. Passengers were permitted with the qualification that they could swim.

Stone Valley, located in the mountains 15 miles south of Penn State campus, was opened in 1961 to provide additional recreational facilities for the student body which is expected to number 25,000 by 1970.

The original construction was financed largely by alumni as gifts and the project now draws revenue from parking fees, camping, use of boats and canoes, and launching and mooring facilities for privately owned craft.

Readily accessible by highway, the area has the reputation as one of the most attractive recreation sites in the state. Currently available are fishing, picnicking and camping facilities, while swimming beaches are to be developed as additional funds become available.



DECEMBER—1963 15

a unique wall ornament

By LARRY J. KOPP

(Photos by the Author)

HERE are few fishermen who have not at one time or other seen a dobson-fly, but have you ever thought of mounting one?

Certainly, the dobson-fly is one of the most weird-looking insects found along our streams. Moreover, it is one of the largest insects in North America—preceded only by the praying mantis and various species of butterflies and moths.

And, considering that its larva—the familiar hellgrammite, is one of the top-ranking live baits for bass and other fishes, it is not too far removed from the realm of fishing.

In any case, it could be a most unusual decorative piece for display on the wall of your den.

Dobson-flies are relatively easy to capture. As a matter of fact, since they are readily attracted to bright lights, collecting one while fishing at night is a cinch.

To kill the insect without going to too much trouble, place it inside a glass jar; screw the lid on firmly, then lay the jar in bright sunlight for several minutes—or place it under any electric lamp which produces heat.

Spreading the specimen is just as easy. Cut a groove, one-half to three-quarters inch in both depth and width, crosswise into a short piece of pine board about five inches wide. Use a glass-headed pin inscrted through the thorax, and pin the insect into the groove. Be certain that all of its legs are contained within the groove for a neater appearance when finally mounted.

Proceed, next, to pin narrow strips of strong paper across both sets of wings, parallel with the body. Take a long pin and move the front wings forward until their lower edges form right angles with the body (Figure 1). Then move the lower wings forward until about three-quarters of their topmost edges are underneath the front wings. Spread the antennae so that they are almost on the same plane as the topmost edges of the front wings. The antennae, as well as the mandibles of male specimens, are held in proper positions with pins placed, one on each side.

Leave the insect on the spreading board for at least five days to insure thorough dryness.

When dry, the dobson-fly can be mounted in a readymade riker mount—or if you prefer, you can easily make your own mount.

Merely cut out most of the top from a handkerchief box; insert a sheet of glass, and glue it firmly in place. Line the bottom part of the box with soft, white cotton (Figure 2).

To mount the specimen, merely place it upon the cotton; place the glass-topped cover over it and seal the edges with adhesive tape (Figure 3).

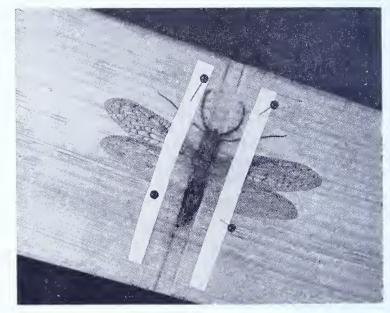


Figure 1.



Figure 2.



Figure 3.

Who Named Our Rivers—and Why?

By WALTER W. HUBBARD

TOO MANY Americans—not born in this Commonwealth as I was—believe that Pennsylvania was named in honor of William Penn, a Quaker who received in 1681 a royal charter from Charles II, to settle, with other Quakers, on a land grant north of Maryland.

Pennsylvania means Penn's woods or forests.

Actually the Commonwealth got its name from Admiral Sir William Penn, Bristol born, who was denounced by Samuel Pepys as a "base rascal." Admiral Penn defeated the Dutch navy in 1665. Nine years later their ships left North American shores for all time, including the departures from Dutch forts and towns on the Delaware, not far south of Philadelphia.

In the friendship which developed between the English King and the Admiral the latter loaned the royal monarch 16,000 pounds. Penn died without collecting it, so the charter to the land which now comprises Pennsylvania was turned over to his Quaker son on condition he name the new land in honor of the Admiral.

It is impossible to motor through the state without seeing something of the beautiful and historic rivers for which Pennsylvania is famous. It was Christopher Marlowe who wrote, in the 16th century, "By shallow rivers to whose falls melodious birds sing madrigals."

The musical name Susquehanna, for example, is derived from an Indian word "suckahanne," meaning water. The Susquehannock tribes lived along the rivers.

The Delaware, on the State's eastern border, honors the memory of England's Lord De La Warr. The Schuylkill River, which bisects Philadelphia, was given a Dutch name "hidden stream" because the first explorers passed its mouth without spotting it.

The Ohio, which flows across the Commonwealth's western frontier, got its name from an Iroquois Indian word meaning "beautiful river"; and the Allegheny, which helps to form the Ohio, appears to have been so labelled because the Delaware Indians believed the word meant "fine river" in the language of a legendary tribe, the Allegewis, whom they defeated.

Monongahela is believed to be a corruption of a Delaware Indian word "menaungehilla" which implies "river with the sliding banks."

Chester Creek, a small river, gets its name from England where so many Chesters are to be found on the highway maps. The Roman word "castra," meaning camp, was warped and twisted into Chester which indicated that Roman garrisons or outposts were once encamped there.

Authorities differ as to the Indian name for the Juniata River. Some say the Indian translation was "beyond the great bend," while others claim Juniata meant "they stay long."

The Delaware Indians once called the Lehigh River the "lechauwekink," which alluded to the fact that "there are forks there." Tioga also has a similar reference, an Indian name meaning "swift current at the forks."

The Casselman (Castleman), some say, took the surname of an early settler. George Washington's little band of soldiers crossed this river May 12, 1754, at Little Crossing, on route to the Ohio country.

The 45-mile long Conemaugh River in southwestern Pennsylvania sounds Irish, but spelling variants such as Connumch and Connemack interpret it as having been a Shawnee Indian name of unknown origin.

The Clarion got its name at the time of the French occupation from a French word meaning "clear." The river kept its name because it sounded like the distant notes of a clarion.

The Indian's word for "bull thistles" was Chenango and that river has a tributary in Mercer County which also has a name given it by the carly Red Men—the Pymatuning. This river, the Delawares said, meant "crooked mouthed man's dwelling place.

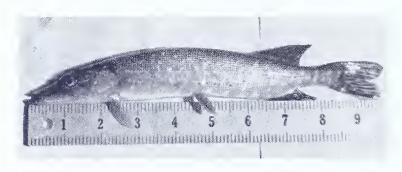


Out-of-state visitors always have difficulty in pronouncing the names of these two rivers—the Youghiogheny and the Kiskiminitas. The former the Indians knew as "a stream flowing in the opposite direction"; the latter, in Armstrong County, meant "make daylight" to the Delawares.

To America's aborigines the Genessee River meant a stream in a "shining or beautiful valley."

These are not all of the Quaker State's rivers, but they are all important. As Blaise Pascal so aptly put it in the 17th century: "Rivers are roads that move."

DECEMBER-1963



WAS THIS northern pike a juvenile delinquent?

IT'S ALL IN THE MIND

WO very elderly gentlemen met for the first time in many years. The usual pleasantries were exchanged and then one of the gentlemen who wasn't holding up under the onslaught of the years noted that the other fellow looked fine. The incapacitated man shuffled his crutches as he curiously began to ask some leading questions.

"How do you feel these days?", he asked.

"You used to like wine now and then. Do you still drink?"

"Yep, I take a nip now and then."

"You were always great for fishing—do you get out anymore?"

"Spent a week on Harvey's Lake last summer."

"You were always quite a ladies' man. How are you doing these days?"

"Still chase 'em, but that's where my memory comes in. I'll be danged if I can remember why I chased them."

With tongue-in-cheek, the foregoing anecdote was used to illustrate the story of a northern pike, a pike that wasn't too old to be thinking of the opposite sex, but too young. Usually small northern pike don't have sex on their minds until they are two years old or about 12 to 18 inches long. The little fellow shown on the accompanying photo was one year old, and measured 9.8 inches. He was taken on a spawning run in Presque Isle Bay in the spring of 1960. He was sexually mature, so it wasn't all in his mind, but the power of positive thinking may have helped.

KEEN Buss, Fishery Biologist Benner Spring Fish Research Station Pennsylvania Fish Commission

Conneaut Boat Safety Program Successful

Conneaut Lake ended its 1963 season without a fatal boating accident for the third successive year. The Pennsylvania Fish Commission credits this record on the safety program it started in 1960 when George Komora, a Conneaut Valley High School teacher, directed the work.

Each summer Komora has been kept busy visiting docks and landings along the lake front to impress boat owners with the importance of observing safety regulations. He has also given his time assisting residents as well as tourists at the lake in applying safe boating practices.

Christmas is a time of giving. And gifts bestowed in the Christmas spirit of love, make friendship lasting, make love enduring, and life richer for us all.

7500 Steelheads Fin-Clipped; 3267 Stocked in Little Lehigh

In the second step of the steelhead experiment, 7500 fish, 8 to 15 inches long were clipped at the Fish Hatchery on Sept. 4. Of this group 3267 were released in the Little Lehigh from above the pools at the Swinging Bridge to the Flat Bridge below by members of the Lehigh County Fish & Game Protective Assn.

In this phase, the left ventral fin was clipped in contrast with last year when the right ventral was clipped. Those steelies, still remaining from last year's group were clipped both left and right. If you should pull one in, you can easily identify which group it comes from before you drop it back in the river. The remaining 4200 steelheads are being held until later in the Fall. They'll be stocked when temperatures in the Big Lehigh and Delaware Rivers have fallen to the temperatures maintained at the Hatchery.

Twenty-three people showed up for the job. Present were Don Jacobs and his brother Dick, Mike Fedorak and daughter Linda, Jim Seyler and son Ricky, Bill Miner, Wilbur Yeager, Jr., Jerry Hirst, Charles MacDonald, Howard Ferguson, James Moser, Ronald Keety, Homer Wambold, Donald Frederick, Harry Paff, Carl Weiner and Stanley Long.

Special mention goes to Ken Crilley who not only worked but furnished his station wagon for transporting the fish from the Hatchery to the Little Lehigh; to Tom Beidler who served as chef. Also lending a big hand were Fish Warden Norm Sickles and Keen Buss, Fishery Biologist for the Pennsylvania Fish Commission, as well as Steelhead Project Chairman Cal Kern.

12,000 steelheads remain for stocking in 1964.

National Wildlife Federation Scholarships Available

The National Wildlife Federation has announced its 1964-65 program of scholarships and fellowships in conservation. They are open to persons who are eitizens or nationals of the U. S. or who will be by March 1964 including graduate student scholarships up to \$1000, with up to \$500 to undergraduates who have completed at least one year of college. Included are studies in resource management, conservation education, journalism, radio and television, landowner-sportsmen relations and related programs. Application blanks may be secured from Executive Director, National Wildlife Federation, 1412 Sixteenth Street, N. W., Washington, D. C. 20036. Applications must be postmarked on or before December 1, 1963; announcement of awards to be made March 1964.

Lehigh Club's Fly-tying Classes in Session

Fly-tying classes sponsored by the Lehigh County Fish & Game Protective Association are now in session under the instruction of Joe Samusevitch. Youngsters interested in learning the fine art of fly-tying from an expert can sign up now for the Thursday night classes.

Christmas crystallizes the highest aspirations of people everywhere and brings into focus the ideals of all the great religions of mankind.



NEW BOAT LAUNCH SITE—Due to the efforts of the Beaver County Conservation League, Rochester Council, Rochester Area School Board and the Pennsylvania Fish Commission a new recreation area including a boat launching ramp will be constructed between Water Street and the Ohio River in Rochester. Shown above, left to right, are: Sam Brown, co-chairman of the Fish and Pollution League; William White, president of Rochester Council; Joe Craig, president of the County Conservation League; Cliff Iman, district fish warden; Ernest Mayhue, president of the Rochester Sportsmen; and Melvin Burris, a shovel operator from Center Hall. Shown in the background is Pat McGovern, shovel operator from Rebersburg.

New Boat Launching Site at Rochester on the Ohio

A new boat launching site at Rochester on the Ohio River is now in the construction stage with a crew from the Pennsylvania Fish Commission's Real Estate and Engineering Division on the job.

The area is being developed through the cooperation of the Beaver County Conservation League, the Rochester Borough Council, the Rochester Area School Board and the Pennsylvania Fish Commission.

The Rochester council leased the site, between Water Street and the Ohio River, to the Fish Commission. The school board sold some property to the borough, which leased it to the commission for parking space. Presently there are no plans for permanent mooring.

Addition of a picnic area and sanitary facilities are planned for the future. Conservation League President Joseph Craig said help from individuals and organizations in improving the facilities would be welcomed, also asked that persons using the area should help keep it clean.

Bit by bit . . . every litter bit hurts!

KEEP AMERICA BEAUTIFUL!

TELL US ABOUT YOUR PET "BETTER FISHING" PROJECT

"What can we do to improve fishing in our local area?" This question is frequently asked of the Pennsylvania Fish Commission and now we ask for your help. Perhaps your sportsmen's club, civic group, Boy Scout, Explorer Troop has completed a stream improvement project, a trout rearing program or other activities designed to improve fishing in your area. We would like to have the know-how, the step-by-step details, snapshots or photographs of how the project was planned and completed. Your ideas may inspire other conservation-minded groups in Pennsylvania to the benefit of all of us. The PENNSYLVANIA ANGLER will gladly serve as the clearing house of all "BETTER FISHING" project ideas. Send them to the Editor, Pennsylvania Fish Commission, South Office Building, Harrisburg, Pa.

Highway—Fish, Game Coordination

A NEW Instructional Memorandum, calling for coordination by highway authorities with fish and wildlife interests, has been issued to its Divisional Engineers by the U. S. Bureau of Public Roads. This should go far toward preventing the wasteful, unnecessary, sometimes arrogant destruction of fishery and game resources associated with much highway construction in many states. Most highways are constructed with some federal aid, thereby bringing such activities under jurisdiction of the Bureau.

James T. McBroom, Chief of Technical Services, U. S. Bureau of Sport Fisheries and Wildlife, believes the document will be of considerable value to state fish and game agencies in carrying out their responsibilities. It was favorably reviewed by Congressman Dingell of Michigan and Senator Metcalf of Montana, both of whom had introduced legislative proposals designed to accomplish a similar purpose in the current session of the Congress. Senator Metcalf commented in the Congressional Record on July 18 in part as follows:

"This memorandum achieves the objectives of Congressman Dingell's and my legislative proposal. With the added advantage of flexibility of an administrative regulation, it recognizes the importance of preservation of fish and wildlife resources of the Nation and takes steps to insure that they are taken into consideration in planning and programming Federal aid highway projects. I congratulate the Department of Commerce and the Department of the Interior for their excellent work in finding a solution to a rapidly growing national problem."

In transmitting copies of the Instructional Memorandum to all the state and game directors the Bureau of Sports Fisheries and Wildlife invited notification in cases where their recommendations have not been reasonably dealt with by state highway departments, or the Bureau of Public Roads. In such cases, after investigation, BSF&W evidently plans to intervene with the Bureau of Public Roads.

The FROM THE STREAMS



HONORED AT DINNER—Ken Aley, right, Potter County District Fish Warden, was honored at a recent testimonial dinner held at Potato City Inn. The dinner, sponsored by area sportsmen's clubs, marked Aley's completion of 25 years of service with the Pennsylvania Fish Commission as a warden. He was given a plaque, several gifts and a monetary consideration by those attending. Don Kelly, on the left, gave him a plaque on behalf of the sportsmen's clubs. W. W. Britton, chief of law enforcement, Pennsylvania Fish Commission, was the main speaker at the dinner. According to Ken . . . it was "one of the happiest moments of my life."

In 1958 muskellunge were stocked in Gordon Lake. In September, 1959, five muskies were checked that were 12 and 16-inches, two—18 inches and one—24-inches in length. This past September, 1963, we checked muskies caught ranging in all sizes. Several were around 32 inches, two 36 inches, one 42 inches and on September 27th one was brought to my home that was 45 inches long. I seem to recall that a number of fishermen figured the muskellunge program would not work in Gordon Lake.

-District Warden WILLIAM E. McILNAY (Bedford)

A muskellunge was seen by a number of fishermen in a hole beneath a bridge on Route 97, west of Union City. The fish looked at an assortment of baits and lures of every description but there had been no report of him taking even the slightest interest in contraptions floated by his snoot. Finally, George Felton, Union City, busted him out on a rapala lure. The fish measured 36 inches, had two hooks in him with leaders hanging out of his mouth and an autopsy showed he had the remains of a duck in his stomach.

-District Warden NORMAN E. ELY (Erie)

When the Department of Forests and Waters commenced to draw down Lower Reservoir at Promised Land State Park to construct a swimming beach and camping area, I felt that any fish which could be salvaged should be removed and stocked in Promised Land Lake, a body of water above Lower Reservoir. This project was started by Game Protector Kriefski and myself using trap nets. When the water got too low for trap nets we tried a seine but found too many fish for the two of us to handle. With the added help of Henry Masker, Warden Harlan Reynolds and special fish warden Harold Hawley and deputy game protector George Snyder, we removed more of the fish but still did not have sufficient equipment. Hatchery personnel and equipment were called in plus other sportsmen of the area to assist the salvage operations. I should note that there are more complaints about fishing in Promised Land Lake than in any other lake in Pike County. I know of good fishermen who fished it throughout the summer and failed to catch anything. Some of these anglers came to watch the operation and simply couldn't believe what they saw. We salvaged 1,609 bass of which 30 percent were 10-14 inches; 60 percent were 14-16 inches and 10 percent-16-22 inches. Also there were 2,084 chain pickerel, 12 walleye—18-20 inches and 114,750 bullheads in the 8-12-inch class. These fish were stocked in lakes open to public fishing in Pike, Wayne, Monroe, Lackawanna and Luzerne counties.

-District Warden JOSEPH BARTLEY (Pike)

Each fall, about this time, very large schools of baby shad are observed in the Delaware River from Hancock downstream through Wayne County. Each year the schools appear larger. Last year I thought the baby shad were in very large numbers but during the week of September 23, 1963, they topped any run I have ever seen. If these fish have good luck on their downstream migration to the sea, we can look forward to some great shad fishing in the next three or four years.

-District Warden HARLAND F. REYNOLDS (Wayne)

While patrolling the Allegheny River recently I checked a fisherman with a nice catch of carp. When I asked what they were hitting he said, "You won't believe me when I tell you!" He added, "I caught those carp on cigarette filters and it has to be the right brand because they won't like just any old brand."

—District Worden KENNETH G. COREY (Warren)

I have never seen so many blue herons in my district as during this summer. I have observed them on sections of French Creek where they have seldom been seen before. Many fishermen also noting their numbers are wondering, along with myself, whether there is a connection between the increase in these birds and the decrease in the number of frogs in the area. Frogs have been on the decrease the past three years, few were found on opening day of the season. If a survey would indicate the blue heron is just ranging farther south for his food because of dwindling marsh areas, it may also signal a sharp decrease in the number of crayfish in our streams. I would certainly not remove protection from this bird but he has sure made a lot of people very unhappy in this area. If the smallmouth bass fisherman ever loses his source of softshells for bait, this big bird will have a plentiful supply of new words attached to his present monicker.

-District Warden RAYMOND HOOVER (Crawford)



FISHING WAS GREAT at Allegheny County's North Park Lake during the WIIC Family Fishing Contest held October 5 and 6. Shown here are a few of the 15,000 anglers who jammed the lake's $4\frac{1}{2}$ miles of shoreline. The lake was stocked with 1,500 Rainbow trout by the Pennsylvania Fish Commission, and with 500 lunker trout by TV station WIIC. Contest was sponsored by WIIC and the Allegheny County Sportsmen's League.

While talking to Pete Suters at his marina on the Raystown Dam, he showed me a bass that had been picked up along the shore. It was a beautiful specimen measuring 20 inches and in splendid condition. The bass had a 9-inch crappic lodged in his throat which evidently proved too big a mouthful.

-District Warden RICHARD OWENS (Huntingdon-Mifflin)

District Warden NORMAN ELY (Erie) recently directed the stocking of 1,200 muskellunge fingerlings in Edinboro Lake. The fingerlings were three months old and from four to five inches in length and were raised at the Union City hatchery. Warden Ely noted the right pelvic fin had been removed from the fingerlings for future study of the growth and survival rate of the stocked muskies.

Boyd A Greak, Williamsport, caught a 12-pound, 35½-inch muskellunge at Hills Creek Park near Wellsboro, during September.

—Northcentral Regional Warden Supervisar JOHN BUCK.

Some Post Season Reflections

Over the course of a season most anglers undoubtedly enjoy several memorable streamside experiences while pursuing their favorite pastime. Among numerous reasons why these occasions have become so memorable, the most common can probably be attributed directly to the taking of a particularly large fish or an unusually great number of them. But what about those other reasons? On occasion the impression left by the size of the catch will be insignificant in comparison with that left by such unlikely factors as a warm rain, the haunting call of a bird or simply being a witness to the passing of a beautiful day. Actually, it sometimes takes very little to transform a simple incident into an enduring memory.

-JIM STEVENSON.

Here's the Christmas gift problem in a nutshell. You've got to find something needed enough to be practical yet not needed enough to be expected.



FISH WARDEN STANLEY PAULAKOVICH displays one of the big rainbow trout entered in the WIIC Family Fishing Cantest held October 5 and 6 at North Park Lake, Allegheny Caunty. Shown with him, left to right, are: Bill Walsh, Canservation Director, Duquesne Brewing Co.; WIIC sparts director Red Donley; Roger Latham, outdoors editor, The Pittsburgh Press, and William E. Guckert, executive secretary, Allegheny County Sportsmen's League.



FRANK MILKO, 4123 Harvey St., Munhall, displays the 24½-inch carp which won him first prize of a Serro Scotty Trailer in the WIIC Family Fishing Contest October 5 and 6 at North Park Lake, Allegheny County. Behind him is his son, Franky, who wan a camera outfit with a 14½-inch Rainbow traut. Admiring Milka's catch is WIIC Sports Director Red Donley. Contest was sponsored by TV statian WIIC and the Allegheny Caunty Sportsmen's League. Over 15,000 fishermen participated.

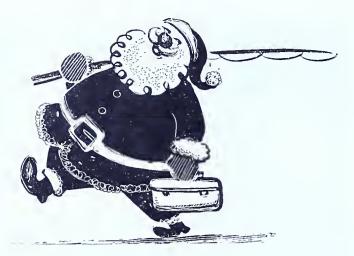
DISTRICT WARDEN RICHARD OWENS

Dear Mr. Owens:

I want to thank you for the splendid assistance we have had from you and the Fish Commission through the years of activities on the dam. Since I have been directly exposed the past year I can appreciate the valuable help you have given. Many thanks for the consideration you have shown to the people of the show.

EARL D. FLICK, President Raystown Water Ski Club

Club Vice President—John Stultz, Secretary—Sally Strickler, Treasurer—Bill Ripka and Chairman of the Board—Ike Bayer.



Dear Editor:

I have been reading the Pennsylvania Angler for about a year and have not changed my opinion of this publication. It is a fine magazine, filled with interesting information, news and data referring to local fishing and to local fishermen. I feel it contains better reading material than that found in some of the popular sports magazines which print stories about the so-called fabulous fishing in some far away regions not easily reached by the average local fisherman.

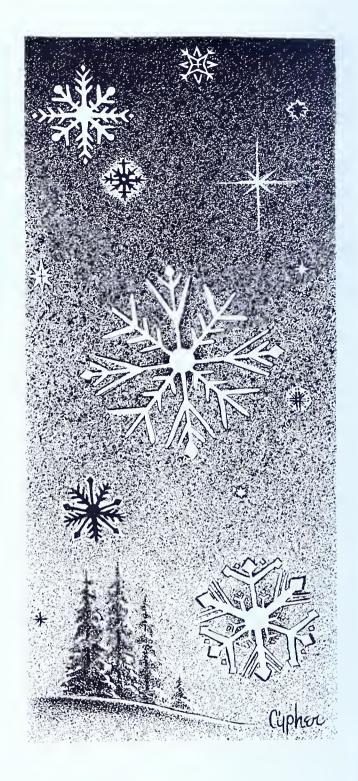
The cost of the Angler is certainly very reasonable. From the stories printed, the indication is that there is plenty of fine fishing available, particularly near the mountain areas. I am a trout "fanatic" and am eonsidering spending my 1964 vacation on some Pennsylvania streams, possibly trying weekend fishing in the nearer waters.

Good luck to the Pennsylvania Angler and hope the Fish Commission continues its fine programs in providing excellent freshwater fishing for its licensed fishermen.

John S. Cook Trenton, New Jersey

Your letter coming near the Yuletide, Mr. Cook, is a gift appreciated!

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A poor down-and-outer found a dollar bill on Christmas Eve. He decided to go down to the waterfront and treat his skid-row pals to drinks. On the way he passed a sporting goods store and saw a baseball bat in the window. He remembered how he longed for one when he was a boy. He forgot his flophouse friends and bought the bat. Then he walked to St. Mary's Industrial School, leaned the bat against the door, rang the bell and fled. The Brothers gave out the charity presents Christmas morn, and the bat went to a chubby boy with a broad nose and a wide mouth. His eyes had a strange look as he set his skinny legs in a stance and swung his round body. That was the day a BABE (Ruth) was born.

The world needs a rekindling of the Christmas spirit right now on a permanent basis. The Christmas spirit of wonder, life, love, joy, and good will should not be reserved for a special date on the calendar or a short season of the year. Christmas is a season of the heart, an attitude of mind, a deep awareness of the presence and activity of God in our lives, and it should be celebrated three hundred and sixty-five days a year.

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THE ABANDONED CLEARING

A FEW gnarled and broken apple trees outline the now vague edges of the clearing, set deep in a forested valley. A fallen chimney and a rectangle of broken masonry mark the location of the house. The lilac bush that had grown beside the door, has taken possession of one corner of the crumbled wall and spilled its untamed tangle into the yard where weeds, briars and creeping myrtle grow unrestrained

Along the stream is the ruins of an ancient water mill partly hidden in the wild tangle of vines and shrubbery. The wooden shaft of the wheel, still showing the mortising where the spokes were fitted, lie partly submerged in the stagnate algae greened pool that had been a part of the mill race. The nether stone lay abandoned with a clump of wild roses to mark its place. Moss and rubble are everywhere.

Below the spring that flows from the foot of the hill, a crude watering trough hawed from a huge tree trunk still catches the water that flows through a wooden pipe. Shards of crockery and a few crumbled bits of masonry

vaguely outline the springhouse.

The ancient walls of a storage cave dug into the hillside still show traces of ancient whitewash. The sod roof has long ago grown too heavy for the rotting beams. A thrifty apple tree, nourished by this damp fertility has taken possession of the interior. The stone lintel lies across the half buried stone sill. A rotund woodchuck, atop the stone, luxuriates in the warm sun.

-ALBERT G. SHIMMEL

EDITOR'S BOOK REVIEWS

THE OUTDOOR COOK'S BIBLE

By Joseph D. Bates, Jr.

224 pgs. 218 illus. Over 200 recipes. Published by Doubleday, New York. \$1.95 at bookstores. By mail \$2.00 from Joseph D. Bates, Jr, Prynnwood Road Longmeadow, Massachusetts

Those who want to learn sensible outdoor cooking without fancy equipment and ingredients will find a bonanza of fascinating information in "The Outdoor Cook's Bible," by Joseph D. Bates, Jr., frequent writer in the Pennsylvania Angler.

Scouts and lost hunters with only a fire and fish or game to cook can enjoy a tasty meal without any equipment, except perhaps a jackknife. If you're vague on fire-building, the book tells how—even in the rain. If you lack a fireplace, camp stove or grill, the book tells how to make them, as well as how to improvise other equipment.

A chapter on skillet cooking extends the usefulness of the common frying pan to a wealth of flavorful dishes, with easy recipes, including breads and desserts. Another chapter tells how to avoid lugging and washing pots, pans and dishes by cooking with aluminum foil—even if it is folded and carried

in your pocket.

Profusely illustrated, "The Outdoor Cook's Bible" proceeds from the elementals to camp and backyard cooking. Well-equipped outdoor cooks will learn how to make tasty snacks on hibachis, how to cook tidbits or full meals on skewers, how to choose and use equipment and how to prepare complete outdoor meals wherever they may be. There are hundreds of simple but succulent recipes, many handed down from generations of experienced outdoorsmen. No matter where you are, no matter how much you have to cook or to cook with, "The Outdoor Cook's Bible" is a gold mine of information for every outdoorsman—including the laziest of backyard chefs.

The Great Northern Diver



DO YOU know and can you name some of the anglers that have been taking fish from the waters without line or hook since the beginning of time? They are the wild anglers of fur and feathers that use as much patience and skill to eatch fish so they can live as does man, for sport, who places a fly just right on promising waters. Man had to learn the art of angling through practice but the Kingfisher, American Merganser, Osprey, Bear and Otter go about their fishing with skill that has been inherited from generation to generation.

One of the best bird anglers is the Loon, with activities carried on in the lakes and hidden waters of the backwoods all over North America and Canada. This blackbodied bird with all-over spots of white will ride the waters and suddenly disappear under the surface with a grace that causes no more of a ripple on the water than a well-placed fly east by a fisherman. Once a fish is seized in the bird's saw-tooth bill it is just as secure as if it had been hooked on the barb of a fishing plug. Many a fisherman, trying his skill on some quiet waters, often waits out what seems to be an eternity the long time between strikes, his thoughts disturbed by the haunting laughter of the Loon. The Loon's legs are set farther back on his body than those of most birds. They cnable the Loon to dive like a bullet knifing deep under water and, with his large, webbed feet, can outspeed the fish on which he feeds.

-OWEN PENFIELD FOX

A minister went fishing with two members of his flock; the chairman of the church board and the Sunday School Superintendent. The latter ran out of bait after a few hours fishing, but refused the minister's offer to row him back to the shore for more. Instead he stepped over the side of the boat and walked over the water to the shore, got his bait and returned in the same manner. It was not long after that when the chairman of the board also found himself without bait. He, too, stepped out of the boat and casually walked over the water to the shore, got more worms and returned via the water to the boat.

The minister observed all this with amazement. When he finally ran out of bait, he shrugged off his coat and, being a man of faith, bravely stepped out of the boat. He sunk immediately. His friends hauled the drenched minister aboard. As soon as the pastor had regained his senses, he took a deep breath, again stepped forth, only to sink the second time. Once again the two laymen labored to pull their pastor back to safety.

But this time, the chairman of the church board asked anxiously, "Just so we don't have to do this again, why don't you tell him where the rocks are?"

DECEMBER—1963

3·ly Jying with Chauncy K. Lively

WHENEVER two avid lady anglers get together on a good trout stream things are likely to happen. And if a third lady should arrive on the scene-one for whom the trout have a particular fondness—an interesting event is practically a foregone conclusion. At least that's the way it happened one summer evening on Michigan's Ausable River, a few miles below Grayling.

The third lady in this instance was Yellow Sally, the little stonefly which Pennsylvania anglers know so well, and her appearance that evening attracted the Ausable browns out of their shoreline cover and started them on a surface feeding spree. Martha Young, of Detroit, and my wife had stationed themselves a hundred feet apart in the river and were fishing a small dry fly tied by Paul Young, a pattern entirely new to me at the time. Response was immediate, and until dark Marion and Martha raised, hooked, landed or lost an impressive number of fine brown trout, most of which were released. Not being inclined toward silence in fishing, nor hiding their zeal, the two anglers tossed shouts and commentary back and forth with the hooking of each fish until the evening air was filled with treble sounds of female enthusiasm. I'm sure the quiet Ausable hasn't been the same since. During the height of the activity a young chap who had been fishing nearby, and who had been doing somewhat less than well, left the stream muttering to himself about some fisherwomen being born with all the luck.

The taking fly that evening was a size #16 Michigan Stone, an impressionistic imitation of the Yellow Sally, tied with a greenish yellow body, a downwing of body hair from the dik-dik, the tiny African antelope, and grizzly hackles tied fore and aft. Needless to say, the fly came back to Pennsylvania with us and many more were tied to try on our own streams.

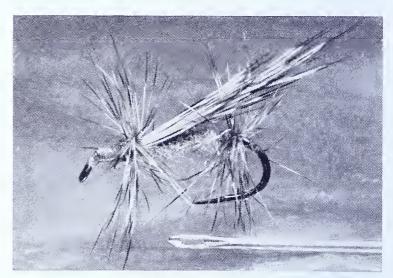
The Yellow Sally (genus Isoperla) is common on most of the trout streams of Penn's Woods and can usually be seen in abundance over riffles on warm midsummer evenings. It is a relatively small insect, with a body length rarely exceeding one-half inch, and the overall color varies from pale yellow to pale green. Prior to the Ausable experience I had imitated the nymph when the little stoneflies were hatching and it worked well, but to my knowledge, dry fly representations of the Yellow Sally were almost nonexistent. In the years since our introduction to the Michigan Stone, this unusual dry fly has added another dimension to our fishing on streams where Isoperla prevails and it has produced fine results as an imitation and attracter. We carry the fly in sizes #16 and #18, the #18 getting a slight edge in personal favoritism.

The Yellow Sally nymph is important, too, for often the trout will ignore the adult insect until the hatch is well under way, preferring instead the larval form as their attention is gradually directed toward the surface. Likely spots for fishing the nymphs are pockets in long riffles and the heads of pools. A long, fine leader, preferably tipped out in 6x, should be employed with both the dry fly and nymph patterns.

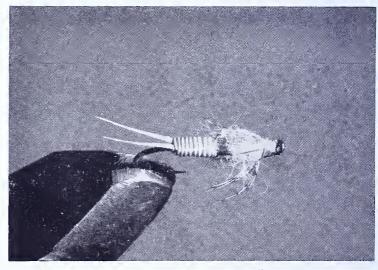
Here are two stream-proven dressings for the Yellow Sally, dry fly and nymph:



Yellow Sally Stonefly (isoperla). Actual body length 7/16".



Michigan Stone—size #18.



Yellow Sally nymph—size #14.

Michigan Stone

Type: Dry fly.

Hook: Size #16, #18, fine wire.
Body: Dubbing of kapok, dyed greenish yellow.
Haekle: Grizzly, tied fore and aft. Front hackle should be

wound over wing butts.

Wing: Body hair of dik-dik or Asiatic mouse deer, tied downwing over body.

Yellow Sally Nymph

Hook: Size #14, regular shank.

Flat Underbody: One strip of .018" nylon monofilament cemented to each side of hook shank. Do not taper.

Tails: Two fibers of pale greyish yellow duck quill.

Abdomen: Center rib of large ginger hackle, soaked and

spiralled forward to thorax position.
Wing Case: Section of pale grey duck quill.

Thorax: Dubbing of cream opossum fur. After thorax is formed, pull wing case over thorax and tie off at head.

Throat: Fibers of partridge breast feather—sparse.



A Monthly Feature For Young Anglers

Footprints on the Shore

F YOU like surprises take a hike to your favorite pond or stream when the banks are covered with snow. Though the place looks deserted you'll be amazed at the tracks of various birds and animals that have been there in your absence—especially if the water isn't completely covered with ice. Even without snow a few tracks are usually evident in muddy places following a warm afternoon thaw.

Seeing the tracks, though, won't be much fun if you don't know what sort of creatures made them. For that reason I've added illustrations of some of the tracks you may see. By comparing the size and characteristic shape of the ones you find with those in the picture most of them can be identified.

The arrangement of the footprints will often vary depending upon whether the animal that made them was walking, running, hopping, or just fooling around. Also, tracks in mud or hard packed snow will look different from those in loose snow. For instance, the mallard footprint on the left was made in firm snow and doesn't show the webs between the toes, whereas the ones on the right were made in softer snow.

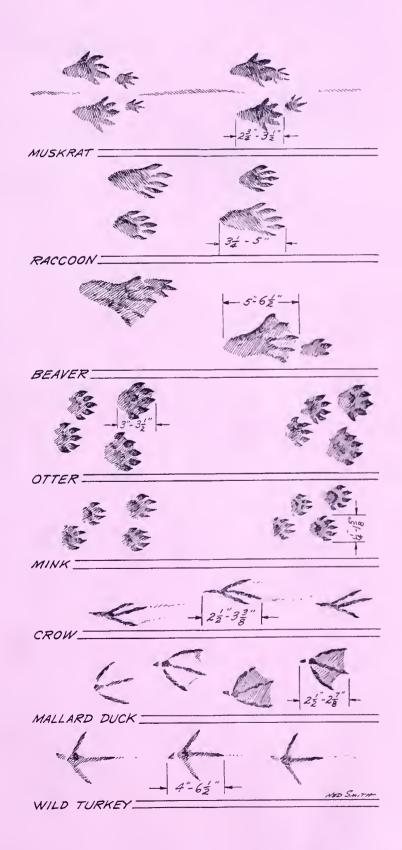
Muskrat tracks are common nearly everywhere in the neighborhood of water, as are the larger tracks of the raccoon. The otter is a rare mammal in Pennsylvania, but the mink is more common than most people think. His tracks just might appear along your favorite small stream.

You can't mistake the big, webbed tracks of the beaver, although his broad, flat tail often spoils the tracks.

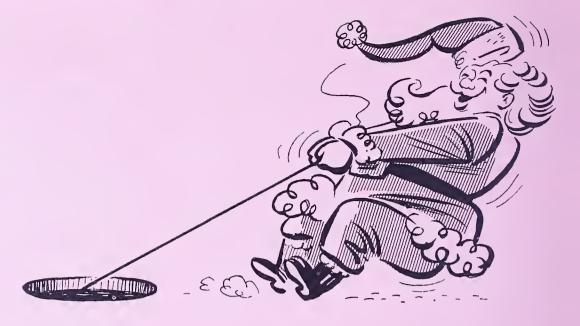
Crows and wild turkeys often visit streams and springs in wintertime to drink and gather grit, while wild ducks sometimes spend the cold months on and around open water.

In addition to the tracks pictured you may see the hoofprints of the deer, the tiny dotted trails of mice and shrews, and the well-known tracks of rabbits, squirrels, and small songbirds.

Once you've identified the maker of the footprints it is interesting to follow them and see what the animal or bird was up to. With a little imagination you can determine if the creature was walking or running. You can see where it stopped, then started again, where it turned aside to investigate something of interest, where it chewed off a plant stem or caught and ate a fish. If you are quiet and alert you might even catch some of these trackmakers in the act—then you'll be absolutely sure who has been prowling around "your" creek or pond.



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